COTTON

DECEMBER, SERVING THE 1939

Textile Industries

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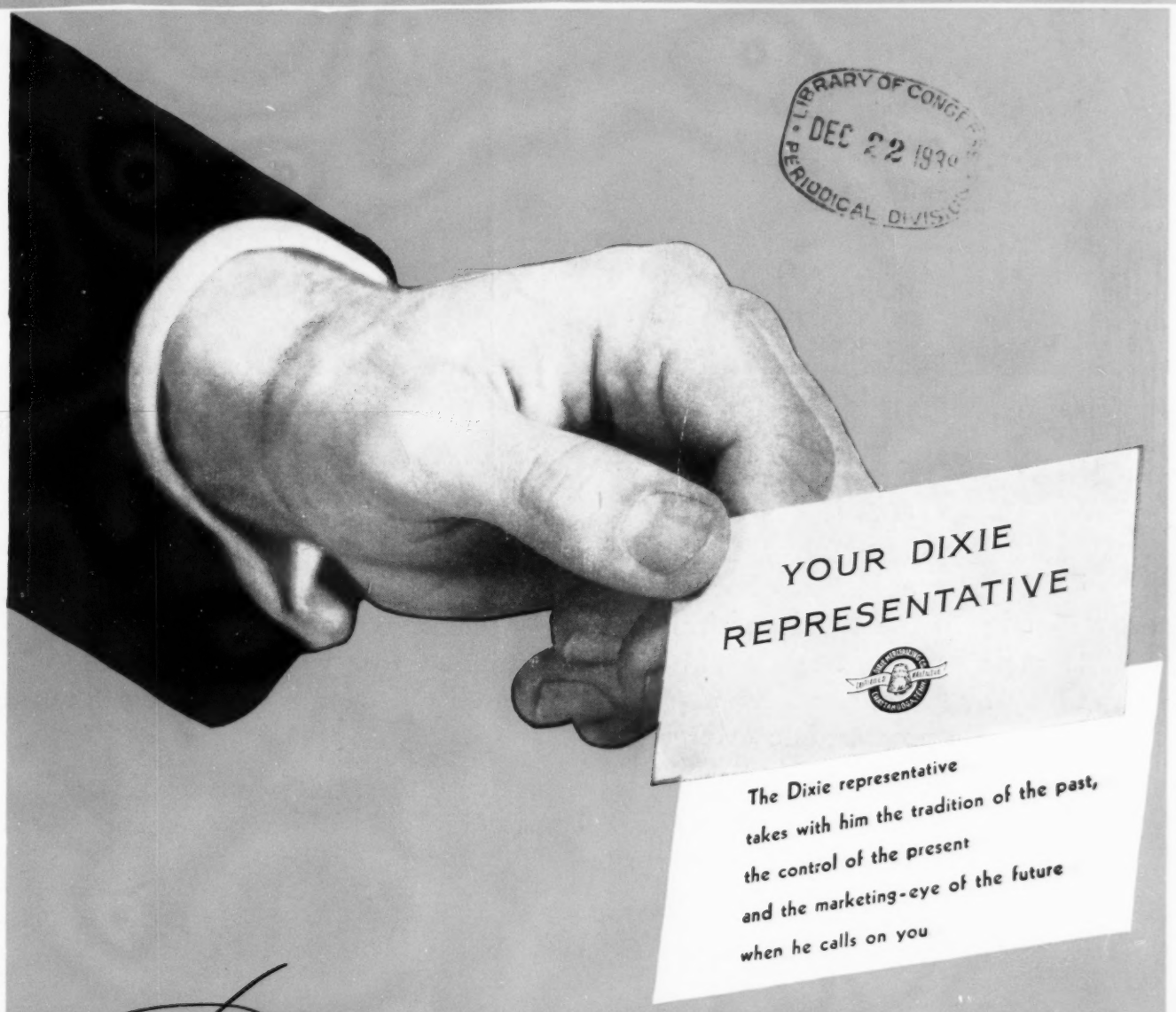
PERIODICAL DIVISION



YOUR DIXIE REPRESENTATIVE

The Dixie representative
takes with him the tradition of the past,
the control of the present
and the marketing-eye of the future
when he calls on you

Dixie **MERCERIZING COMPANY, Chattanooga, Tenn.**

DIXIE DURENE . . . A PRODUCT OF CONTROLLED MANUFACTURE

REPRESENTATIVES

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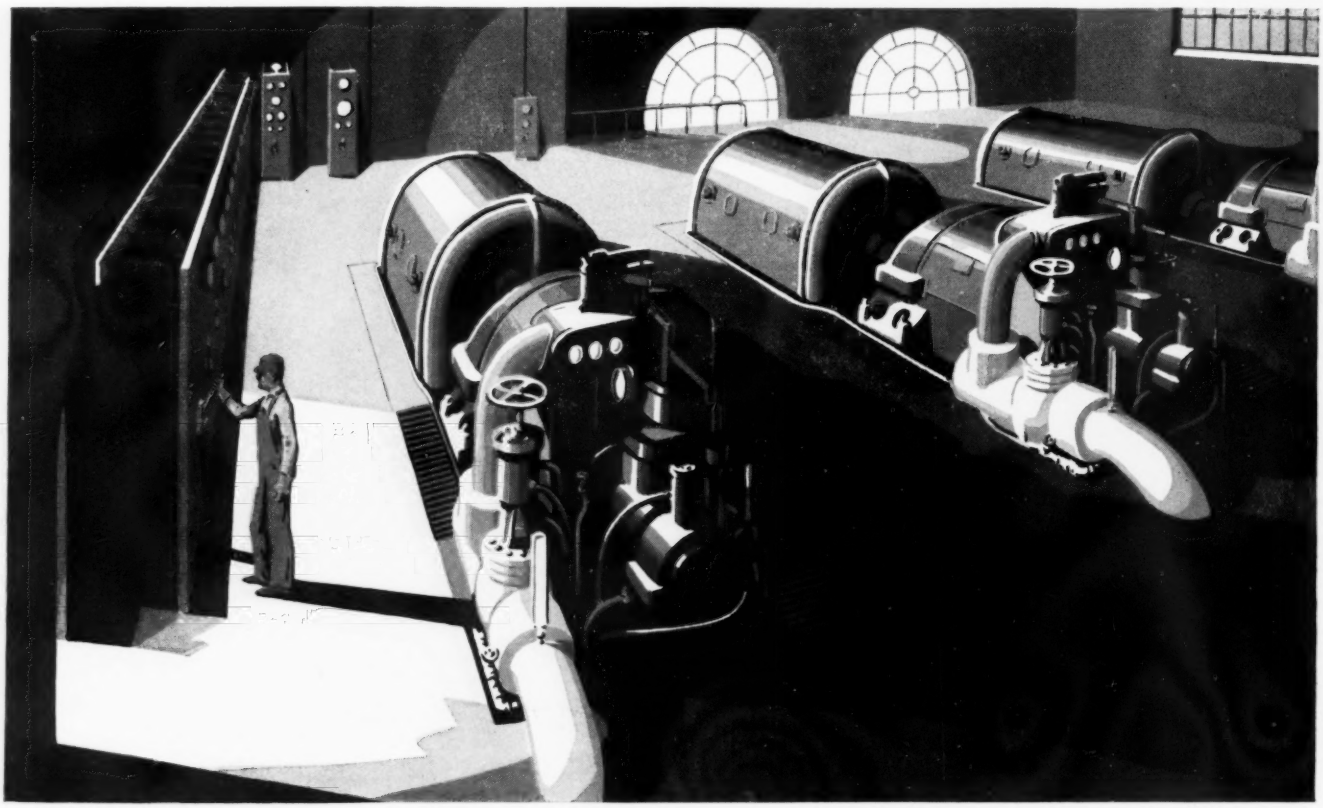

Stand-by Facilities

THIS organization of architects and engineers remains ever responsive to the needs of industry. As technological developments take place, our personnel is trained in them. We try to foresee the modernization, the new construction which our clients will require, and to be prepared accordingly.

So you will find, as all our clients have found, that we are today thoroughly ready for you, staffed and equipped to undertake your projects when you give the word.

Such coordination is the product of a quarter century of service in our field, the result of many responsibilities, taken with the seriousness they warrant.

ROBERT AND COMPANY

INCORPORATED

Architects and Engineers

ATLANTA

NEW YORK . . . WASHINGTON

LAWRENCE WOOD ROBERT, JR., President

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With Either 3 Rings Engaged

or

With Only Two

Draper Patent Bobbins With Lower Middle Ring Are More Firmly Held in the Shuttle Spring Than Ever Before Possible

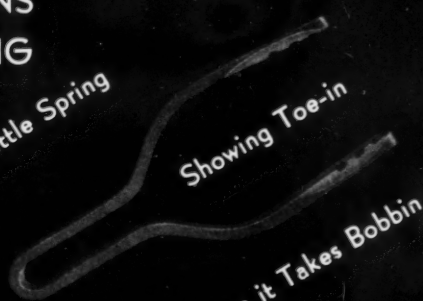
Here's Why!

WITH 3 RINGS ENGAGED—There is No Chance the Bobbin Will Rock on a High Middle Ring

WITH 2 RINGS ENGAGED—The Slight Toe-in of the Shuttle Spring Ends—Necessary to Give Proper Springing to Receive and Hold the Bobbin—Insures a Perfect Hold on the Bottom and Lowered Middle Ring

BUY DRAPER BOBBINS FOR GOOD WEAVING

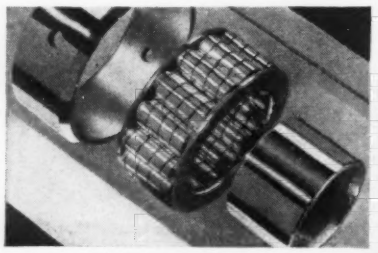
We Make Warp Bobbins Too



Draper Corporation

Atlanta Hopedale Spartanburg

ANTI-FRICTION LOOMS *Save Power!*



Three-part **HYATT BEARING** of the wound-roller type with heavy load-carrying capacity used in textile looms and other machinery applications.

CROMPTON AND KNOWLES S-3 Shuttle Changing Looms equipped with Hyatt Roller Bearings, in modern textile mill. Texaco Starfak Grease proves highly effective in the lubrication of anti-friction bearings in all types of textile mills.

PHOTOS COURTESY OF HYATT BEARINGS DIVISION, G. M. SALES CORP.

PHOTO COURTESY OF CROMPTON & KNOWLES LOOM WORKS

for SPINDLE LUBRICATION

A new scientifically refined spindle oil from the heart of selected crudes, designed especially to reduce power consumption over long periods, with freedom from gumming and fogging.

TEXACO SPINDURA OIL AA

PERFECTED LUBRICATION FOR TEXTILE SPINDLES

TO GAIN the full advantage of ball and roller bearings in looms and other equipment, an ever-growing number of textile mills are lubricating them with Texaco Starfak Grease.

With Texaco Starfak Grease, starting and running torque is lower. This lubricant is stable, resists oxidation and gum formation through long periods of service. It does not separate or leak out, but maintains its lubricating qualities over wide ranges of temperature.

Experienced lubrication engineers trained in the selection and application of Texaco Textile Lubricants will be glad to demonstrate that savings can be made with Texaco Perfected Lubrication.

For prompt engineering service and deliveries, phone the nearest of our 2279 warehouses in the U. S., or write: The Texas Company, 135 E. 42nd St., New York, N. Y.

•

Texaco Dealers invite you to tune in The Texaco Star Theatre—a full hour of all-star entertainment—Every Wednesday Night—Columbia Network—9:00 E.S.T., 8:00 C.S.T., 7:00 M.S.T., 6:00 P.S.T.

TEXACO

REG. T. M.

TEXACO Starfak Grease

No Sleuth Could Get a CLEAR SOLUTION Quicker Than Warner TSPP

Many mills are no longer letting detergent problems deter them from combining superior results with substantial savings in their boil-off operations. They've adopted TSPP...Tetra Sodium Pyrophosphate...having found that this bland, active detergent transforms water into a solution of crystal clearness and limpid softness when used with or in place of other agents.

There is no precipitation of calcium or magnesium with TSPP, and all gummy, oily substances and other foreign matter are dislodged from the fibers. Dispersed and kept in suspension they rinse out easily. And TSPP has the unique property that it is stable—the solution stays clear indefinitely, under sustained high temperatures throughout the boil-off operations.

There may be a clear solution to your problems of economic boil-off operations in Warner TSPP. We will be glad to facilitate your investigation. Technical data, advisory cooperation, adequate samples and price quotations will be gladly furnished. There is, of course, no obligation.

OTHER WARNER CHEMICALS

Carbon Tetrachloride, 99.995% Pure

Carbon Bisulfide	**Chlorine**
Magnesium Oxides	**Sodium Sulfide**
Blanc Fixe	**Caustic Soda**
Barium Carbonate	**Caustic Potash**
Barium Hydrate	**Epsom Salt**
Barium Oxide	**Hydrogen Peroxide**
Barium Peroxide	**Alumina Hydrate, Light**

WARNER

CHEMICAL COMPANY ☆ DIVISION OF

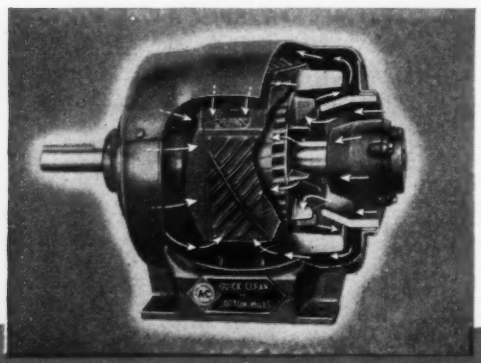
WESTVACO CHLORINE PRODUCTS CORPORATION

CHRYSLER BUILDING, NEW YORK, N. Y.

Lint Goes in
AND OUT THROUGH
BIG AIR PASSAGES!

Money Saving Facts On Quick-Clean Motors

IN THIS LARGE SOUTHERN TEXtile Mill, Allis-Chalmers Quick-Clean Motors remove the risk of shutdowns due to clogged motors . . . completely beat lint and fly conditions that stop ordinary motors.



HERE'S THE QUICK-CLEAN PRINciple! Dust laden air drawn into the motor is ejected at sides. Roomy unobstructed passages and glass-like surfaces make it impossible for lint and dust to adhere!

Quick-Clean Motors are Tailor-Made for the Textile Industry! Find Out About the Savings They Can Bring You . . . How They Beat Lint . . . Stop Shutdowns . . . Halt Power Leaks!

Here's the answer to shutdown troubles in your mill — a textile motor that *can't be stopped* by the heaviest dust, lint, or fly conditions!

That's what you want in a textile motor. And that's the kind of service you get with the Allis-Chalmers Quick-Clean Motor — a special motor for a special job . . . tailor-made to fit the toughest textile operating conditions!

Better Job with Quick-Clean!

And because it does a better job . . . and saves money while doing it — that's why textile operators everywhere are switching to Allis-Chalmers Lo-Maintenance Quick-Clean Motors to beat lint . . . eliminate motor shutdowns . . . protect production schedules . . . reduce power costs!

For when you equip your mill with Quick-Clean Motors, you get motors that deliver more than just a rated horsepower. You get exclusive quick-cleaning features — large, open, unobstructed air passages . . . hard, glass-smooth surfaces . . . dust-sealed working parts!

Get Quick-Clean Savings!

On top of this, there's an indestructible rotor . . . high carbon steel frame . . . distortionless stator . . . husky, full measure construction! Add all these features together — and that's your answer to long-life performance without running up costly repair bills.

It's easy to get the complete story on Quick-Clean Motors — how they are designed expressly for textile use . . . how they are made . . . what savings they bring you. Call the district office near you. Or write direct to Allis-Chalmers for full details.

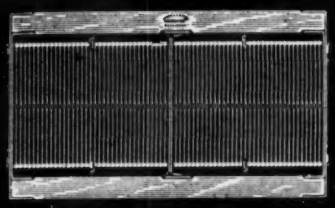
1106

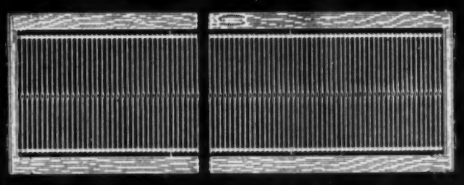
ELECTRICAL DIVISION

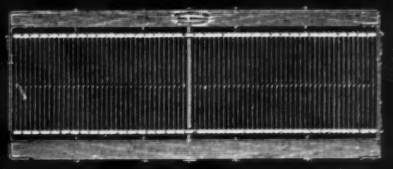
ALLIS-CHALMERS

MILWAUKEE · WISCONSIN

FRAMES

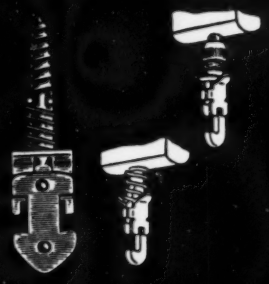




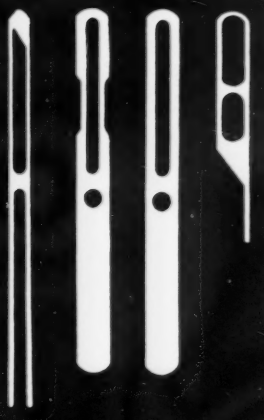


FLAT STEEL HEDDLES

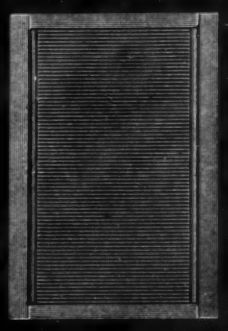
LOCK HOOKS



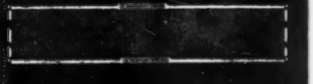
DROP WIRES



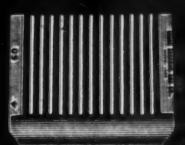
REEDS



All-Metal



Pitch Band Reed



Comb Reeds

Special Reeds

He profits most who wisely invests in the best of equipment!

SUPER-smooth, flawless finish

TIME-proved superior performance

ECONOMY that means greater profits

HIGHEST-class workmanship

EXCELLENT return on investment

DURABILITY in high speed service

CONSTRUCTIVE technical advice

ORIGINALITY in design

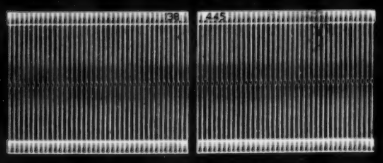
Any of our field representatives (all practical mill men) will gladly give you the facts.

Steel Heddle Mfg. Co.

STEHEDCO HEDDLES · REEDS · FRAMES AND HARNESS · ACCESSORIES

2100 W. Allegheny Ave., Philadelphia, Pa.

BRANCH OFFICES ALL OVER THE WORLD

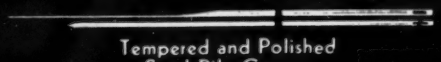


ATLANTA TWINE HARNESS

QUALITY LOOM HARNESS EQUIPMENT

Stehedco

SHUTTLES made by our subsidiary — Southern Shuttles, Inc.



Tempered and Polished Steel Pile Gauges

ORDINARILY, a maker of fast-changing modern production machinery does not brag about how old a particular machine is, but this case is different. The Union Special LOCKSTITCH is now celebrating its fifth birthday and IT IS STILL THE MOST MODERN MACHINE OF ITS KIND IN THE FIELD!

Furthermore, due to the large number of exclusive basic features incorporated in its design, it can expect to have equally good occasion for celebrating birthdays for quite a few years to come.

We invite you to investigate this machine. Find out why hundreds of users call it *"The plain seamer that costs less to own!"* UNION SPECIAL MACHINE CO., 438 N. Franklin St., Chicago, Ill.

THE Lockstitch
UNION SPECIAL

for
SIZING
SPUN
RAYON

HOUGHTO-SIZE S R

The size news you'll welcome if you're processing spun rayon . . .

The size developed in mills after long, intensive tests, to meet the specific needs of a softener for spun rayon . . . .

A concentrated product which assures maximum breaking strength, elasticity, high weave-room efficiency, and easy removal in the boil-off.

Houghto-Size S R (spun rayon) can be used with any starches or gums. . . or on any spun rayon or mixed fiber warps. With it we offer the services of trained textile specialists who are ready to run a Size Check-up Test and make recommendations for your mill.

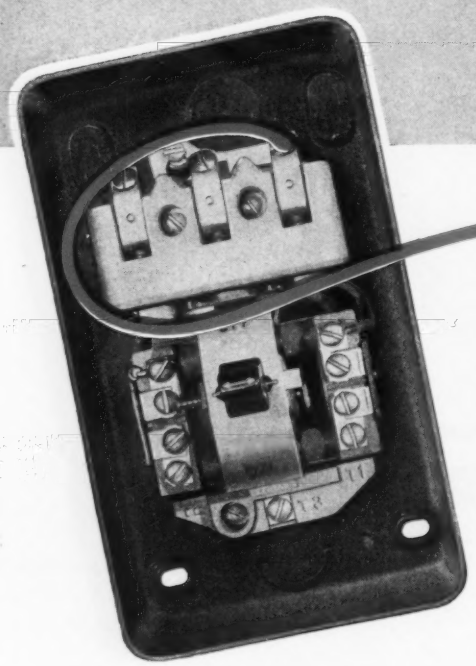
To get the whole story write E. F. HOUGHTON & CO., Third and Somerset Streets, Philadelphia, or Charlotte, N. C.

★

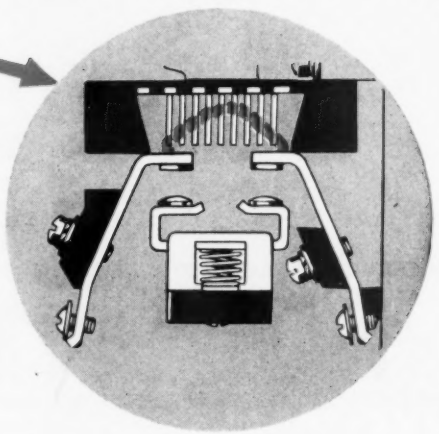
HOUGHTON PROCESSING PRODUCTS
for the TEXTILE INDUSTRY

"De-ion" Arc Quenchers

PROLONG CONTACT LIFE IN THIS NEW LOOM SWITCH



When the switch is opened, arcs are quenched instantly by "De-ion" grids. Note how the arc is drawn into the grids, cut into small pieces and extinguished.



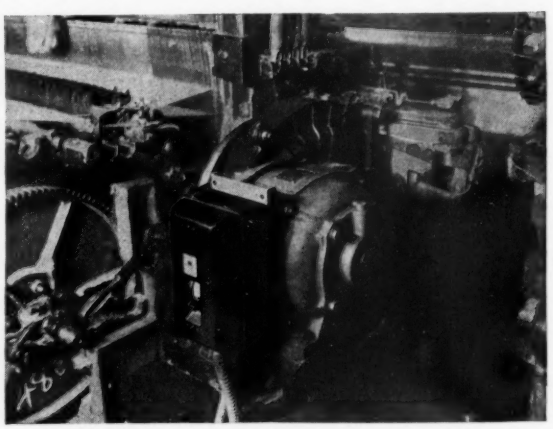
Snuffs out arcs . . . prevents flashover . . . stops burning of contact points. It's 1939's best buy for starting motors up to 7½ hp.

COMPARE with any loom switch at the price

- snap action bi-metal disc relay cuts the motor from the line before heat from overload can damage the windings. Resets to correct calibration.
- equipped with safety interlock — prevents accidental contact with live parts.
- indicating handle shows at a glance whether starter is on, off or tripped.

Phone your nearest Westinghouse office or distributor for prices, sizes, types and capacities.

J-20849-A

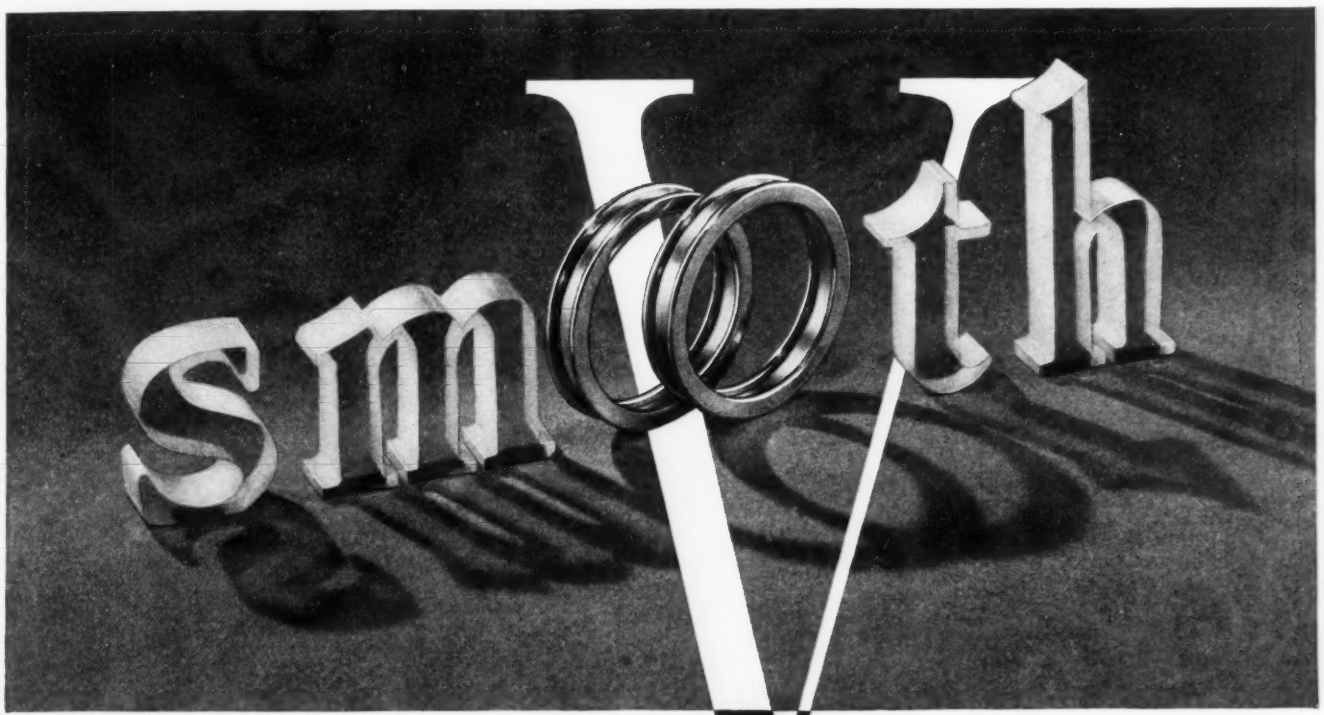


WESTINGHOUSE ELECTRIC & MANUFACTURING CO., East Pittsburgh, Pa.

Westinghouse Loom Switch

W WESTINGHOUSE ELECTRIC

. . . Give your travelers a "*TURN FOR THE BETTER*"



Pawtucket Rings fit the word smooth to a "T". They're designed for grueling high-speed performance. The low number of ends down . . . and longer traveler life reduce both operating and maintenance costs.

The Vitritex Finish on these rings preserves the full thickness of the outer case . . . it is not merely a veneered polished surface. The very application of this finish hermetically seals the surface against the destructive and corrosive effects of moisture and gases. Production, too, can be started at normal speed — for no slow-running, breaking-in period is necessary or required.

Vitritex finish

Here we have given the briefest facts about these improved rings. Our engineering staff would like to give you more details . . . and show you how these rings can *increase* your *production, reduce maintenance costs* and give your travelers a *"TURN FOR THE BETTER."*

PAWTUCKET SPINNING RING COMPANY

(SUBSIDIARY OF SACO LOWELL SHOPS)

CENTRAL FALLS · RHODE ISLAND

Partners in Progress!

SPEEDING trucks, crack streamliners, far-flung ribbons of concrete and steel. Spectacular symbols of modern high speed transportation, a brilliant chapter in modern progress.

Far less spectacular, perhaps, *but vitally important is the progress being made in shipping containers to meet the greater stress and strain imposed by this modern road and rail shipping.*

Gaylord packaging specialists, studying modern shipping have discovered an entirely new set of bumps, jolts and bounces . . . new hazards to the safety of your product which ordinary containers fail to guard against and often cause losses in money and business.

And today, with special Gaylord laboratory equipment, these trained, practical men can put your packaged product through the hardships of a modern 5,000 mile journey in 5 minutes!

From this proving ground come Gaylord Boxes whose superior design, materials and construction keep step with modern transportation demands . . . boxes which are, indeed, partners in modern shipping progress.

Is your firm one of the many who are losing business and money, often without realizing it, through shipping containers unable to cope with today's hazards? It will pay you to find out. Check with Gaylord. No obligation.

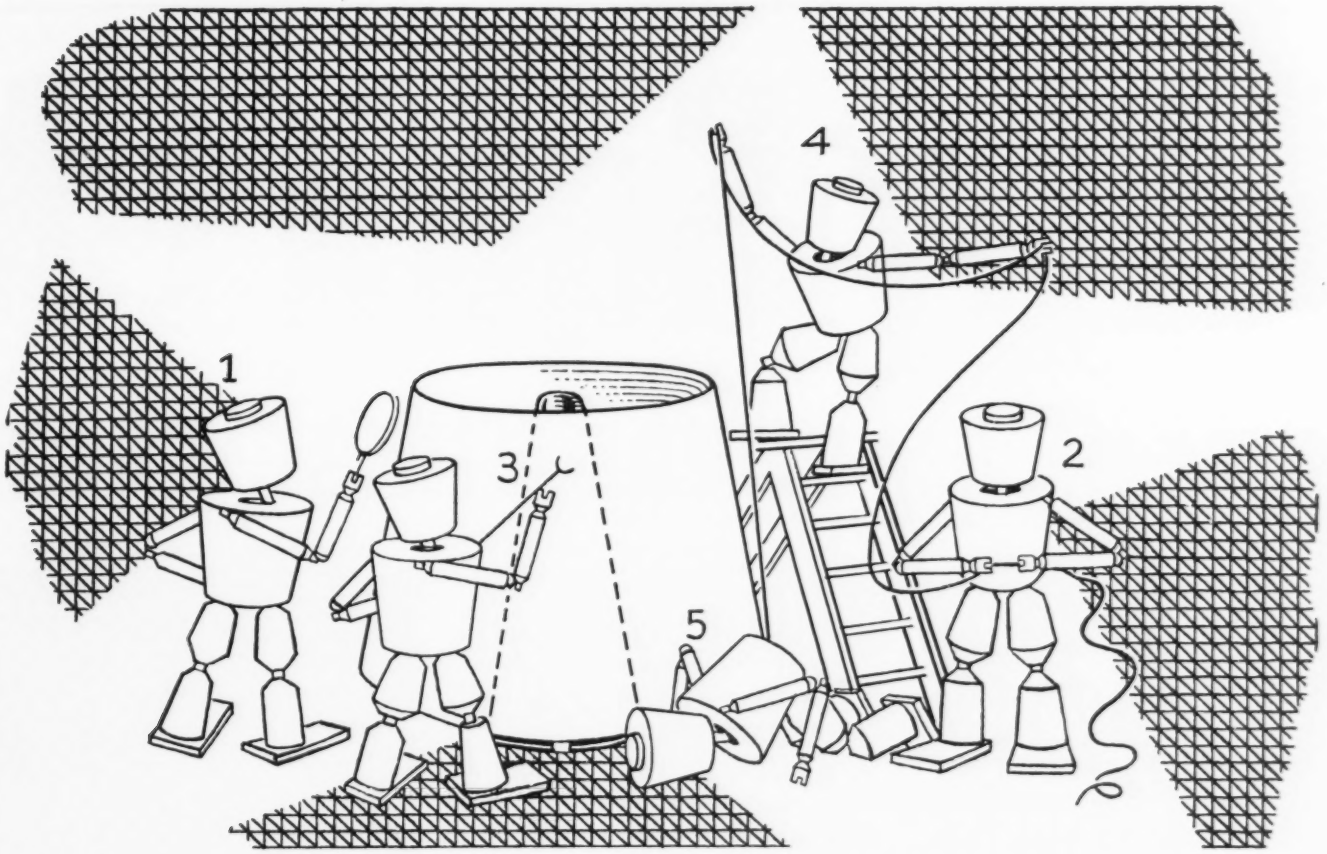
Gaylord Boxes

CORRUGATED AND SOLID FIBRE

Also Gaylord Folding Cartons . . . Grocery Bags and Sacks . . . Kraft and Specialties

GAYLORD CONTAINER CORPORATION, General Offices: SAINT LOUIS

There's a Gaylord plant or sales office in your territory



The ROTO-CONE presents a FIVE-POINTED OPPORTUNITY

to do better and more profitable knitting

Dyers and weavers also benefit from superior packages

1. *No roll-cut yarn.* The Roto-Coner is a rotating traverse winder which eliminates roll-cut yarn. On a reciprocating-guide winder there are slip drums which nip the yarn near the nose end of the cone, causing press-offs on the knitting machine.

2. *Stronger, cleaner yarn.* The rotating traverse eliminates chafing, because it revolves with the yarn, leaving it strong and round. Dirt is thrown out by the higher winding speed.

3. *Uniform density.* Positioning the package on the back of the roll, means that as the package increases in diameter, the added weight is not allowed to add pressure to the inside layers.

4. *Proper taper.* On the knitting machine, yarn delivers freely from any diameter without dragging over the nose or surface of the cone.

5. *Underwinds eliminated.* The groove in the rotating traverse quickly reverses the yarn at the ends of the traverse, preventing underwinds and hard ends on the package.

YARN MILLS HAVE OPPORTUNITY TO INCREASE PRODUCTION AS WELL AS QUALITY

The many mills now operating Roto-Coners are winding soft knitting packages at speeds around 550 yards per minute. Dye packages, tubes and cheeses are produced at about 500 yards per minute. Wood cones for warping are wound at 750 yards a minute. With cams eliminated, the winding speed is limited only by the way the yarn comes off the bobbin or by the density of the package required for operations which follow the winding.

Bulletin 144 describes the Roto-Coner for knitting yarns and dye packages; Bulletin 244 for high speed warping yarns.

ROTO-CONER LEESONA

UNIVERSAL WINDING COMPANY P.O. BOX 1605 **PROVIDENCE, R. I.**

BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA

Why Squirt M

READ THESE FACTS

With "Persistence of Film," Gargoyle Vactra Oils meet a double need—

❶ Help Mills Use Less Oil. These oils stick to the job...allow infrequent re-oiling...help save labor and oil costs.

❷ Help Mills Reduce Spoilage. Because these oils cling to metal they reduce spattering...save on "seconds."

Add up these facts, and you'll see why more and more mills make the rule: "Insist on 'Persistence of Film'"!

THE SOCONY-VACUUM man offers you a complete line of lubricants, plus these *exclusives:*

The right lubricant for every machine . . . and new lubricants ahead of new needs . . . developed by world-famous research laboratories through close cooperation with machine builders.

73 years' experience—thousands of case histories—to guide in prescribing the right use of these lubricants to gain Lubrication Profits for you.

World-wide distribution and guaranteed uniformity—the same quality available everywhere.

oney Away?

ABOUT "PERSISTENCE OF FILM"

Another Tough Job for
OIL FILM
Successful operation of every machine depends on the quality of the oil that forms the *microscopic coating* which helps prevent metal-to-metal contact.

SOCONY-VACUUM

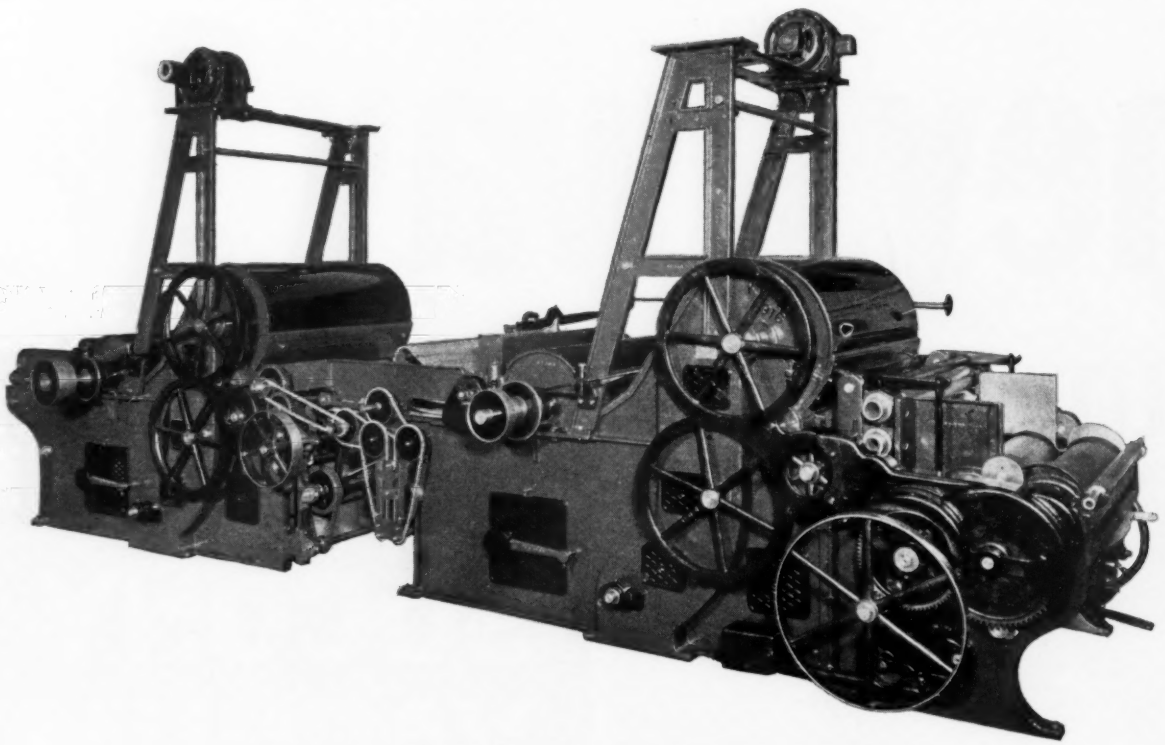
Industrial Service and Lubricants Help to Lower Costs by

Correct Lubrication

GARGOYLE Lubricants

SOCONY-VACUUM OIL CO., INC.

Standard Oil of New York Division · White Star Division
Lubrite Division · Chicago Division · White Eagle Division
Wadhams Division · Magnolia Petroleum Company
General Petroleum Corporation of California



A NEW PICKER BUILT INTO OLD FRAMES

The working parts are new—the frame, which will last forever if not broken, is old.

The cost is therefore about half the cost of putting the new working parts into new frames.

The picker is equipped with the Aldrich Synchronizer which has uniformly produced laps making evener card sliver than laps produced by any other picking system.

This picker is arranged to be fed either with the conventional hopper feeder or directly from the Gyrator, Cleaning, Blending and Distributing Machine provided with automatic feed boxes.

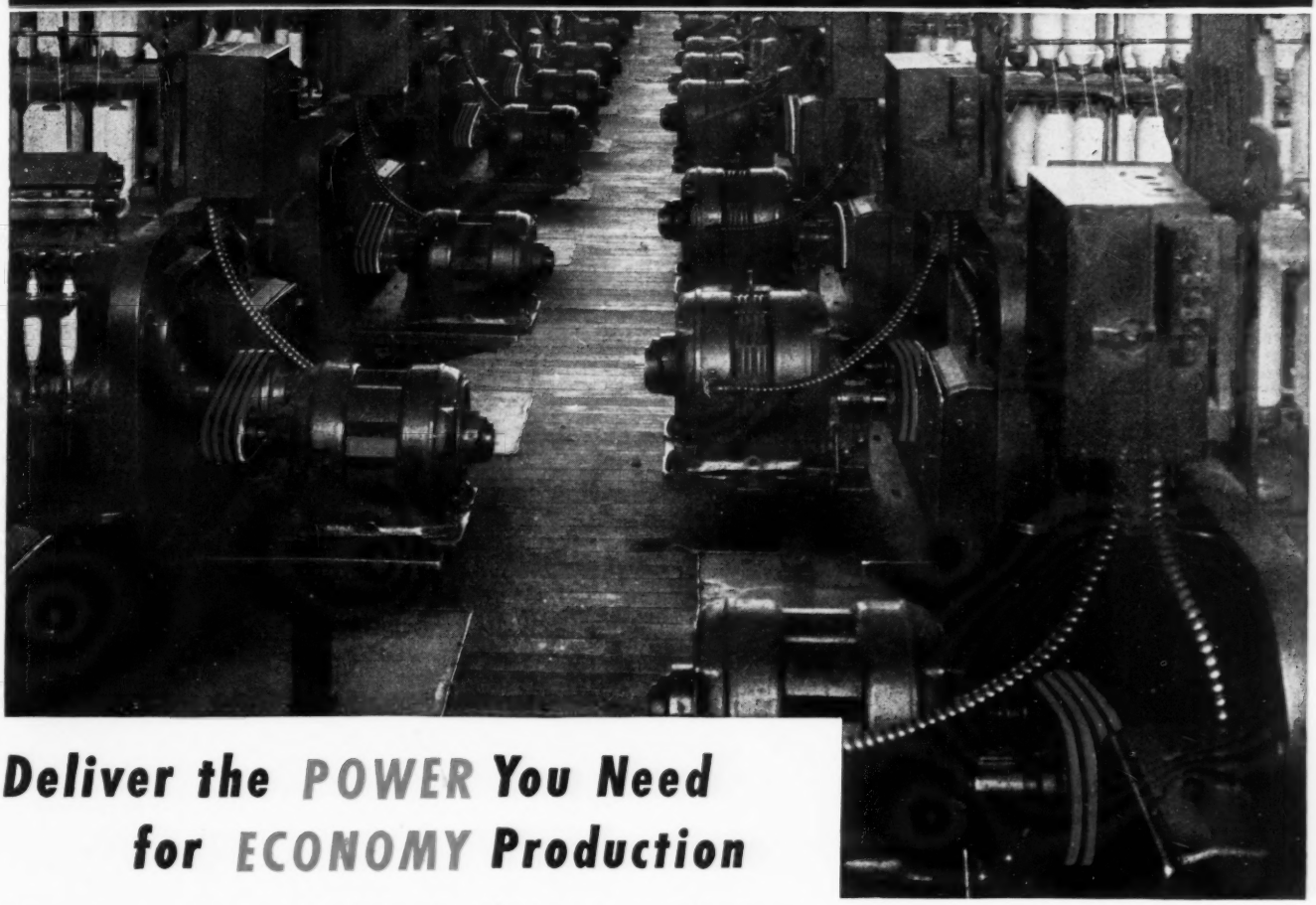
Every modern improvement which should be on a picker is built into this one—there is nothing old about it but the framework.

Your old pickers can be made into new pickers right where they sit on the floor, with little delay or inconvenience.

AldricH MachinE

Greenwood, WorkS South Carolina

CONDOR WHIPCORD V-BELTS



Deliver the POWER You Need for ECONOMY Production

Make it a point to say "Condor Whipcord V-Belts" the next time you replace an old or equip a new drive. Then, get ready for a long-lasting, money-saving experience in transmitting power.

Regardless of pulley size, load variations or flexing, Condor V-Belts are made to keep a firm, steady grip on the walls of the sheave groove and laterally reenforced against wear and squeezing. Their cord section, concentrated in a narrow plane and placed in the neutral axis to reduce destructive internal stresses and heat, takes loads without undue stretch.

Write now for Bulletin 6868 which contains clear, easy-to-read facts on Condor Whipcord V-Belts' 8-Point Balanced Construction. It will be your first step toward getting the power you need to maintain production economy.

Condor PRODUCTS

V-Belt
Transmission Belt
Cone Belt
Air Hose
Acid Hose
Water Hose
Fire Hose
Steam Hose
Suction Hose
Molded Rubber Goods
Oilless Bearings
Hard Rubber Pot Eyes
Rubber Lined Tanks
Rubber Covered Rolls
Abrasive Wheels
Bowling Balls

Write for Manhattan's new Condor Whipcord V-Belt Engineering Data Book.

THE MANHATTAN RUBBER MFG. DIVISION
OF RAYBESTOS-MANHATTAN, INC.
EXECUTIVE OFFICES AND FACTORIES
48 Townsend St., Passaic, N. J.

GOOD BUSINESS NEWS

IF your business happened to be in a temporary tight spot for lack of working capital, who would have the deciding word as to how much you could borrow to tide you over—*you*, or the lender?

Most business financing smacks of dictatorship. It is tight-formed by tradition and precedent. It lays down terms and conditions which the borrower *must* accept. It measures his worth by what he *has*—not by his present or potential volume of profitable sales.

That's where "NON-NOTIFICATION" Open Account Financing shows a definite superiority. It is poles apart from other forms of financing in flexibility, in ease and speed of action, in conforming to the actual day-by-day needs of the business that employs it.

It fits easily into the plans and operations of any manufacturer or wholesaler—big or small—as these two actual cases*, taken from our records, illustrate.

Case #1—Sales for the first four months of 1938, before using our open Account Financing, were $117,197. Net loss, 14%. Sales for the first four months of 1939, using our service, were $154,792 gross. Net profit was 7.1%. Outstandings increased to a figure permitting 60% greater borrowing capacity.

Case #2—Company started using our Open Account Financing in 1928. Annual Sales volume was then $1,301,778. For the year 1938, gross volume was $5,608,067. Eight years volume, 1931 to 1938 inclusive, was $31,761,974—all financed, without increase in capital, by anticipation of receivables.

* * *

You can easily have a sample of how this kind of financing would ease your problems, without disturbing in any way your present customer relations or interfering with management. First, send for our pamphlet, "COMPARATIVE COSTS OF FINANCING". Then, if you're interested, let one of our officers meet with you and arrange a practical demonstration. No obligation.

**The facts and figures, taken from our records, can be certified.*

COMMERCIAL CREDIT COMPANY

"Non-Notification" Open Account Financing

BALTIMORE

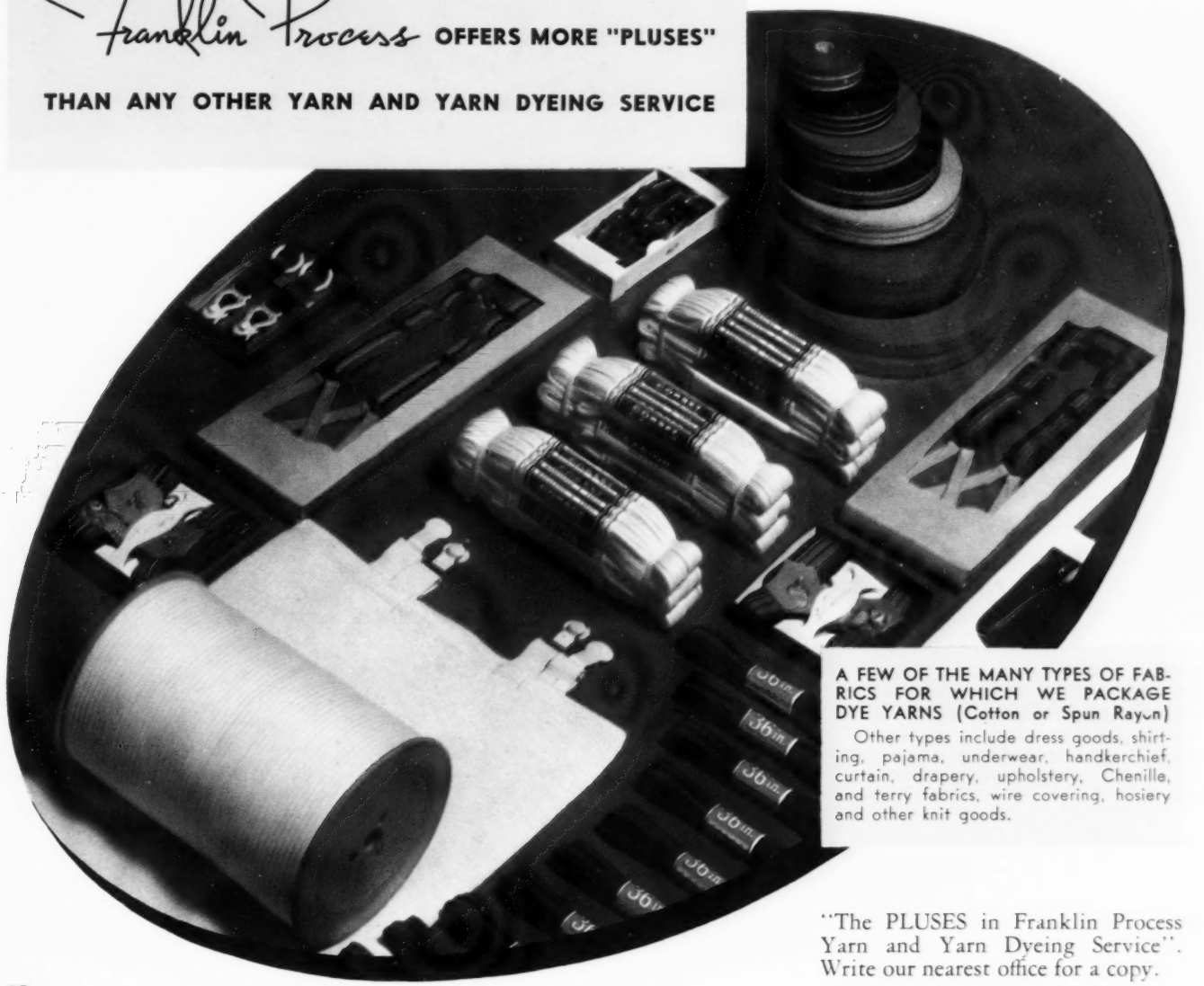
BOSTON NEW YORK CHICAGO SAN FRANCISCO PORTLAND, ORE.

CAPITAL AND SURPLUS MORE THAN $65,000,000

DIVERSIFIED EXPERIENCE . . . ONE REASON WHY

Franklin Process OFFERS MORE "PLUSES"

THAN ANY OTHER YARN AND YARN DYEING SERVICE



A FEW OF THE MANY TYPES OF FABRICS FOR WHICH WE PACKAGE DYE YARNS (Cotton or Spun Rayon)

Other types include dress goods, shirting, pajama, underwear, handkerchief, curtain, drapery, upholstery, Chenille, and terry fabrics, wire covering, hosiery and other knit goods.

Not only does this company have the largest custom yarn dyeing production in the world (20,000,000 lbs. in 1938), but it also has the most diversified experience. Its four plants are located in widely separated major textile areas, each distinguished by a predominance of a different type of work. Therefore each Franklin Process plant is in turn distinguished for its specialized knowledge of local yarn and yarn dyeing requirements.

On the other hand, the specialized knowledge of any ONE plant is available to ALL Franklin Process plants, when occasion requires. Therefore, no matter which plant is favored with your order, you can rest assured that it will be handled in accordance with the most approved practice.

Lack of space prevents a recital of the many other benefits which our service offers, but these are explained in detail in our circular, "The PLUSES in Franklin Process Yarn and Yarn Dyeing Service". Write our nearest office for a copy.

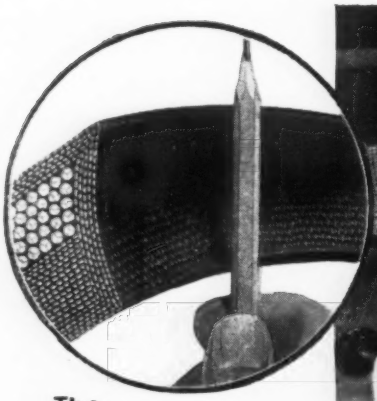
FRANKLIN PROCESS COMPANY

Natural Yarns, Colored Yarns, Glazed Yarns, Dyeing and Processing Machines

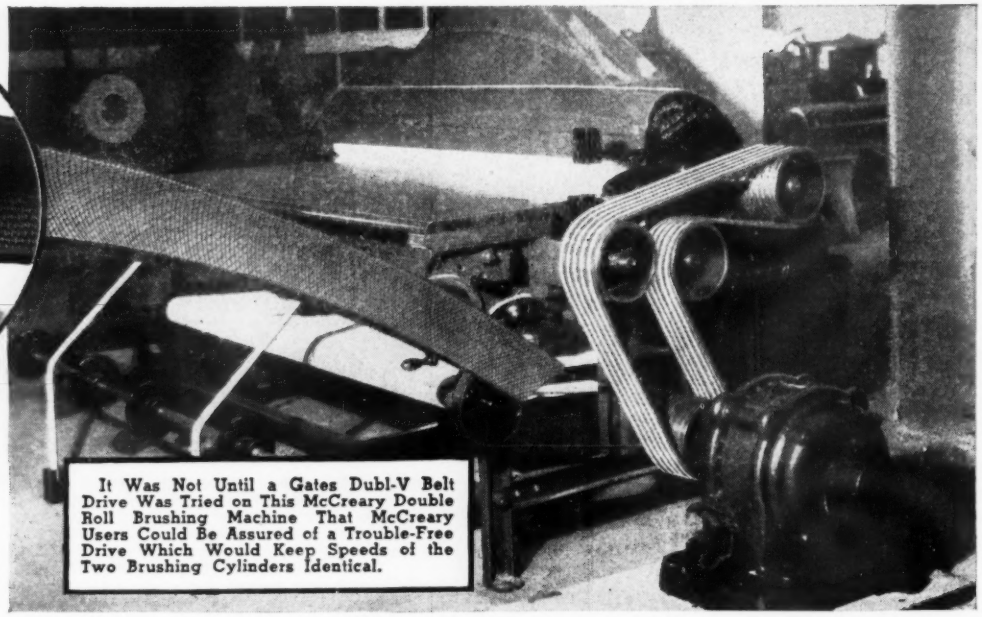
Providence, Philadelphia, Greenville, Chattanooga . New York Representative, 40 Worth Street. · Chicago Representative, 100 W. Monroe Street

Franklin Process

★ **SPECIALISTS IN PACKAGE DYEING SINCE 1910**

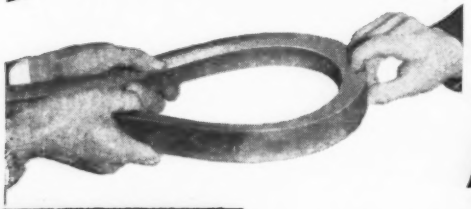


The **Concave Side**
IS A GATES PATENT



It Was Not Until a Gates Dubl-V Belt Drive Was Tried on This McCreary Double Roll Brushing Machine That McCreary Users Could Be Assured of a Trouble-Free Drive Which Would Keep Speeds of the Two Brushing Cylinders Identical.

Prove this *Yourself!*



Grip a Bending V-Belt With Your Fingers and Learn ***WHY*** the Concave Side Makes

A BIG SAVING in Belts and Power

What Happens When a V-Belt Bends

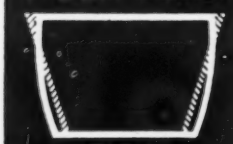


FIG. 1

FIG. 2

If you want longer belt wear and better transmission of power, make this simple test:

Take any V-belt that has *straight* sides. Bend that V-belt while you grip its sidewalls between your fingers and your thumb. You will *feel* the sides of the belt *bulge out*—as shown in figure 1 on the left. Clearly, that out-bulge gives the belt a shape that does not fit its sheave groove.

Now look at figure 2. There you see what happens when you bend a belt that is built with the patented *concave* side. You get a similar change in sidewall shape — but what a *different result!* The precisely engineered concave side becomes perfectly *straight*. This belt, when bent, exactly fits its sheave groove —and two big savings result.

First:—With no out-bulge of the sides, the *full width* of the belt *uniformly* grips the sheave groove wall. This means *uniform* wear—*longer life*. Second:—The full side-width grip on the pulley carries heavier loads without slippage. This saves belt wear—and it saves a lot of power, too!

The Gates Vulco Rope is the Only V-belt built with the patented concave side.

THE GATES RUBBER COMPANY

Engineering Offices and Stocks in All Large Industrial Centers

GATES VULCO ROPE DRIVES

CHICAGO, ILL., 1524 South Western Ave. HOBOKEN, N. J., Terminal Building BIRMINGHAM, ALA., 1631 1st Ave., S. LOS ANGELES, CAL., 741 Warehouse St.

DENVER, COLO., 999 South Broadway DALLAS, TEX., 2213 Griffin Street PORTLAND, ORE., 1231 N. W. Hoyt St. SAN FRANCISCO, CAL., 2700 16th St.

It's a Time when WE can HELP!

SPEED-UP! A welcome order of the day . . . but definitely a challenge to resourcefulness in buying.

STEIN-HALL is Ready! Men, methods and raw materials merge in an alert, capable Service covering starches, dextrines and gums for textile purposes.

STEIN-HALL can Help!...with resources which long experience in domestic and foreign raw material markets brings to bear.

STEIN-HALL can Help! . . . with its fundamental research and ever-expanding laboratory facilities for improved mill output.

STEIN-HALL can Help! . . . when emergencies arise . . . should regular products become unavailable . . . when equivalent materials are needed quickly.

With complete stocks conveniently available . . . with field experts supplementing laboratory facilities located in the leading textile centers . . . *It's a Time when WE can Help!*

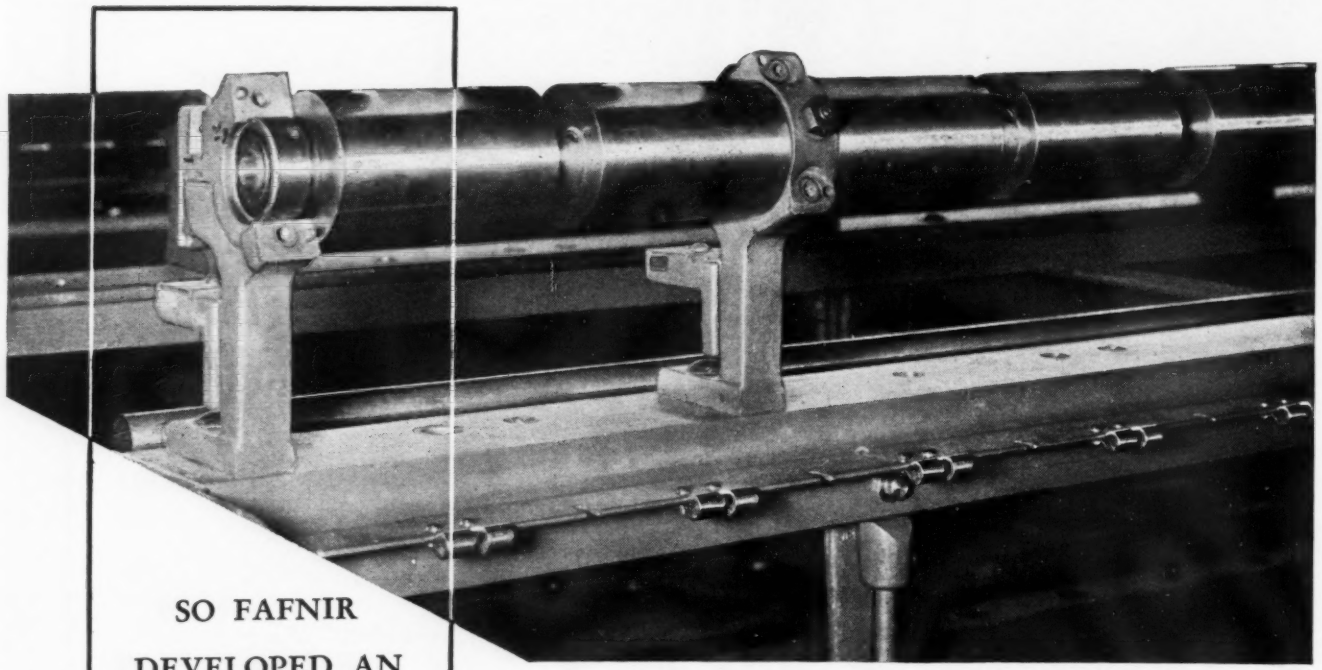
STEIN, HALL & COMPANY, Inc.
285 MADISON AVENUE Established 1866 NEW YORK

STARCHES • DEXTRINES • GUMS

For Every Textile Purpose

"Make it SPEEDY... but SPOTLESS"

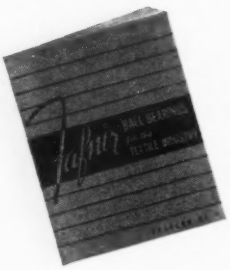
Demanded the Rayon Industry . . .



SO FAFNIR DEVELOPED AN INGENIOUS NEW BEARING FOR WHITIN MACHINE WORKS

Like many another part of rayon-making equipment, Twister Feed Rolls make unprecedented demands on the bearings which support them. *They must be clean* . . . incapable of contaminating yarn. *They must be fast and frictionless* . . . demanding ball bearings. *They must be reliable,* for 24-hour-a-day operation.

Fafnir met these problems squarely and licked each in turn for the Whitin Machine Works application shown. Insured cleanliness by eliminating all possibility of lubricant leakage – through use of a ball retainer of porous bronze, which gives up oil only as the polished bearing surfaces need it – no oversupply possible. Gained accurate, frictionless service through famous Fafnir standards of precision, which assure a friction-free bearing from the start, and virtual elimination of wear in service. Assured further dependability by incorporating protective shields to keep dirt and dust out of the bearing, and giving exposed parts special corrosion-resistant treatment. Tested now in thousands of hours of continuous operation, these Fafnirs have definitely proved their contribution to rayon progress.



Get acquainted with Fafnir's specialized Textile Bearing line – and with the sound Fafnir engineering service which stands ready to develop bearings to meet your unusual applications. The Fafnir Bearing Company, New Britain, Connecticut.

FAFNIR *Ball Bearings*

THE BALANCED LINE • • MOST COMPLETE IN AMERICA

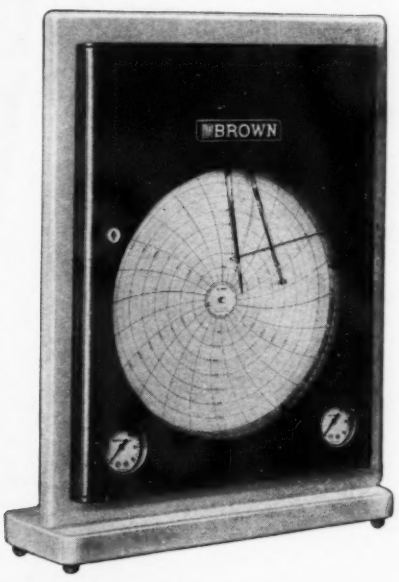
NEW *AIR-o-LINE* CONTROLLER Is "Tuned In" to Processes by the Touch of a Finger

AUTOMATIC RESET DIAL

The graduated dial makes it possible to change the rate at which the control point is automatically reset. No resistance tubing is used, thereby saving the time required when rate of reset is changed by varying the length of resistance tubing in the reset mechanism.

THROTTLING RANGE DIAL

Graduated from 1 per cent to 150 per cent throttling range. Sufficient to provide flexibility required to meet any type of control problem. Instantly adjustable without removing chart plate.



Air-o-Line **Controller in modern rectangular case. Styled by Henry Dreyfuss.**

In process control—the lack of co-ordination in regulating such variables as temperature, pressure, flow and liquid levels, inevitably results in unbalanced operation—with resultant loss in time and increased costs.

The New Brown *Air-o-Line* Controller provides this co-ordination. First, by the simplicity with which *Air-o-Line* is "tuned in" to process control; Second, by the extreme precision with which it maintains control.

To put an *Air-o-Line* instrument into operation, it is necessary only to set the control index at the desired point. Then, a turn of the graduated dials enables the operator to "tune in" *Throttling Range* and *Automatic Reset* quickly and precisely without guesswork. *Air-o-Line* then becomes fully automatic.

The new Brown air-operated controllers are entirely new inside as well as out. Advanced design of the operating mechanism provides a new conception of *outstanding performance with simplicity.*

Constructional features of these new instruments include: new spiral actuating element . . . recording mechanism . . . chart drive . . . control mechanism and other new developments which are described in Catalog No. 89-10. Write for it. THE BROWN INSTRUMENT COMPANY, *a division of Minneapolis-Honeywell Regulator Co.,* 4492 Wayne Avenue, Philadelphia, Pa. Offices in all principal cities. Toronto, Canada: 117 Peter Street—Amsterdam-C, Holland: Wijdesteeg-4—England: Wadsworth Road, Perivale, Greenford, Middlesex—Stockholm, 16-Sweden: Nybrokajen 7.

BROWN AIR-OPERATED CONTROLLERS

Outstanding Performance with Simplicity

NOW WE'VE PUT *Steam* INTO RANGE DRIVES

New System Adds a Fourth Kind of Range Drive

RANGE DRIVE: *Two or more finishing machines grouped to process cloth in successive order are said to be in range. Range drive operates each machine in step with the requirements of the entire range.*

IN ADDITION to the three previously established types of range drive, General Electric now can furnish a fourth: turbine-electric. This drive enables double use of process steam. This is of special advantage in mills where there already is a supply of high-pressure (90 lb. or more) steam for process. Where steam and other conditions are favorable, turbine-electric range drive provides these advantages:

LOW FIRST COST — **LOW MAINTENANCE**
LOW OPERATING COST — **WIDE SPEED RANGE**
SIMPLE CONTROL

The quantity of steam required by the turbine ordinarily does not exceed the steam requirements of the process. Turbine-electric range drive employs ***existing*** boiler capacity.

Now Applied to Printing and Soaper Ranges

Completion of development work over the last two years, with more than a year's successful operation in mills, assures the proper handling of future applications of this type. In one mill, the system operates at rates of 175 yards per minute and faster. Both soaper and printing range drives of this type are in operation. General Electric is in a position to furnish and co-ordinate the *entire equipment* necessary for this *drive.*

3 OTHER KINDS OF RANGE DRIVE FURNISHED BY GENERAL ELECTRIC:

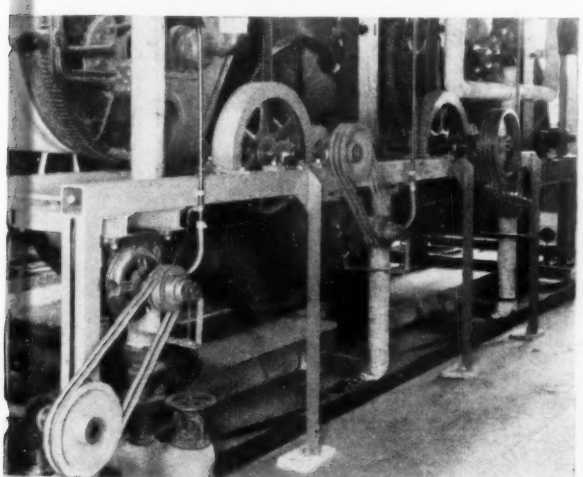
1. **ADJUSTABLE-VOLTAGE, D-c (Ward Leonard)**
2. **CONSTANT-VOLTAGE, D-c, Adjustable-speed**
3. **ADJUSTABLE-SPEED, A-c, by use of BTA Motors**

Simplicity of Control

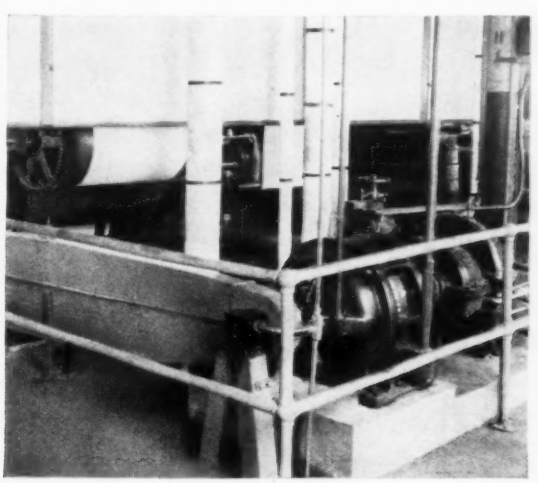
Starting and stopping, jogging (inching) and other speed adjustments are easily and simply controlled by push buttons conveniently located.

For additional information on the specific application of any electric equipment for textile mills, write General Electric, Schenectady, N. Y., or refer to the nearest G-E office.

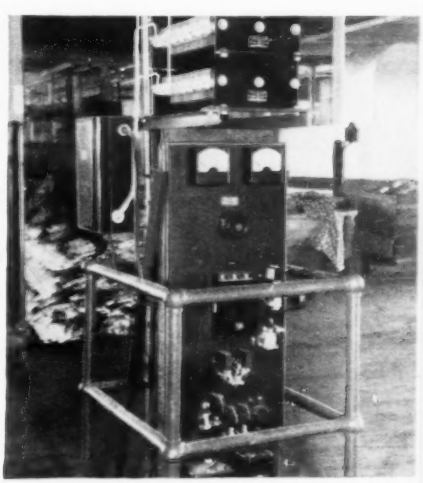
New printing range drive. Turbine-generator, that mechanically drives printing machine, is in middle background. Control panel at right. At lower left (not shown) is a handy push-button station for all control functions



This view of same printing range drive as above shows motor drives of batcher and dry cans. Power generated by turbine-generator pictured above



Soaper range drive. Turbine-generator mechanically drives dry cans and generates power for motor drives of other range sections

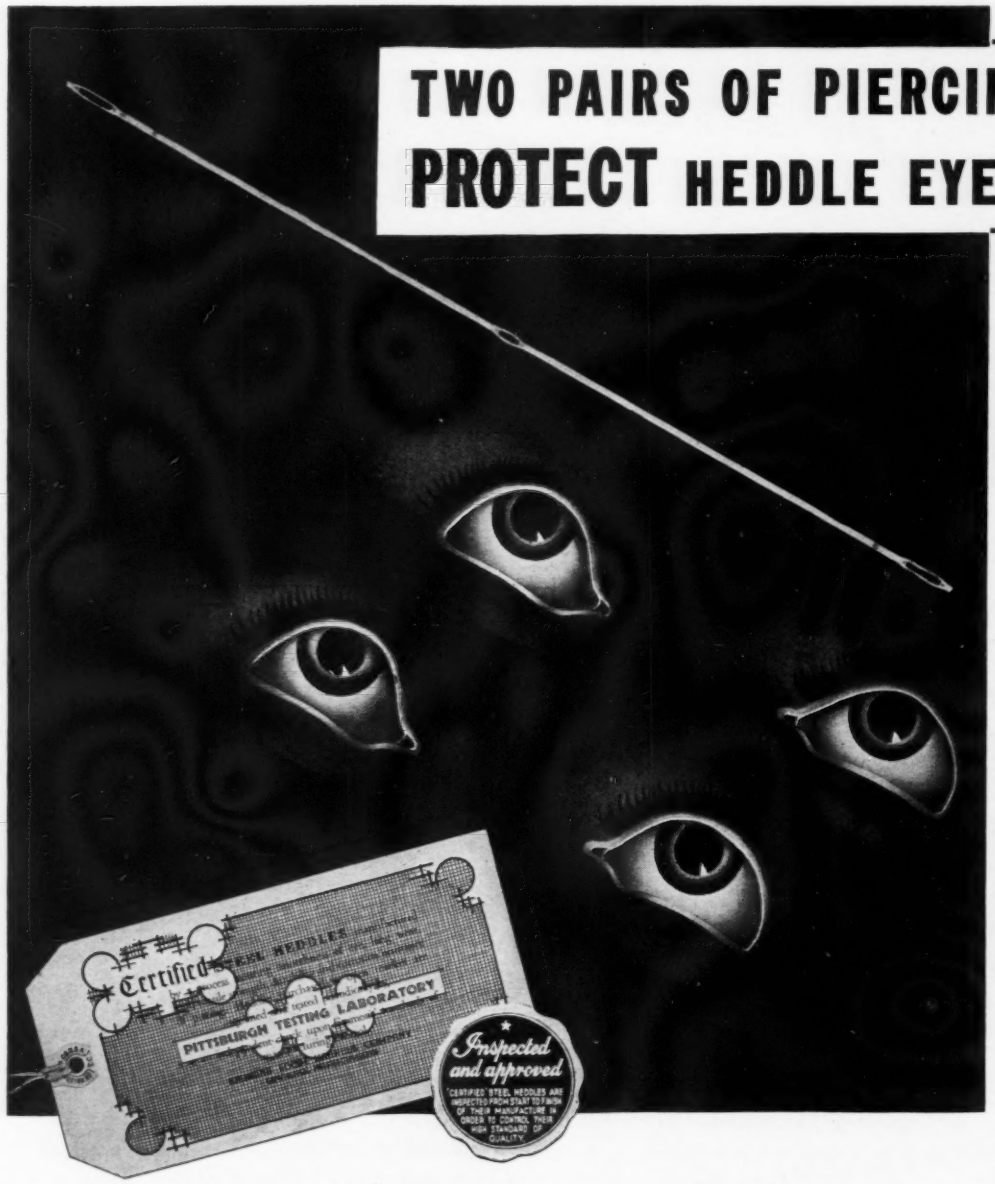


Control panel, including braking resistors, for soaper range drive and turbine-generator

GENERAL ELECTRIC

011-560

TWO PAIRS OF PIERCING EYES PROTECT HEDDLE EYES FOR YOU

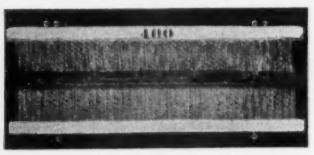


ALL day long the watchful eyes of Emmons inspectors check the unvarying high quality of "Certified" Steel Heddles. Rigorous tests for eye-smoothness, strength, flexibility, and thoroughness of plating, must be met before heddles get the "Inspected & Approved" tag and are ready for shipment.

Another pair of eyes besides our inspector's, regularly checks the four above mentioned qualities of Emmons "Certified" Heddles. This occurs in the Pittsburgh Testing Laboratory, where Emmons steel heddles purchased at random in the open market are subjected periodically to exacting tests.

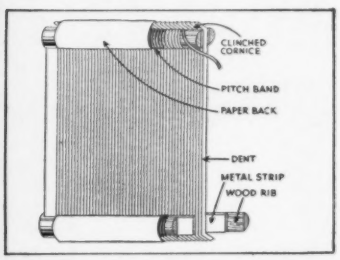
These pairs of eyes, the seal and "Certified" tag, are your guarantors of consistently top-notch heddles. Buy Emmons "Certified" Steel Heddles and be free from troubles. Quick delivery.

THE WEAVER'S CORNER



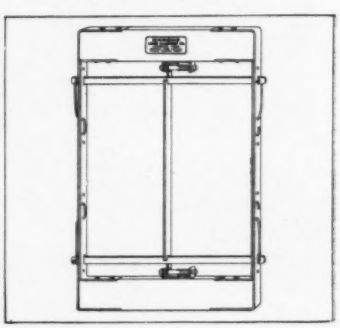
CHAFELESS CORD COTTON HARNESS

Long staple cotton—5 coats of special varnish—48 hours' baking—mean extra strength, extra smoothness and absolute humidity protection.



FLEXBAC REEDS—Born of Modern Engineering

A *full inch* of additional flexing distance—much *quicker* flexing back of the dents than in ordinary pitchband reeds—give you considerably longer trouble-free reed life.



NEW PATENTED BRACE BAR

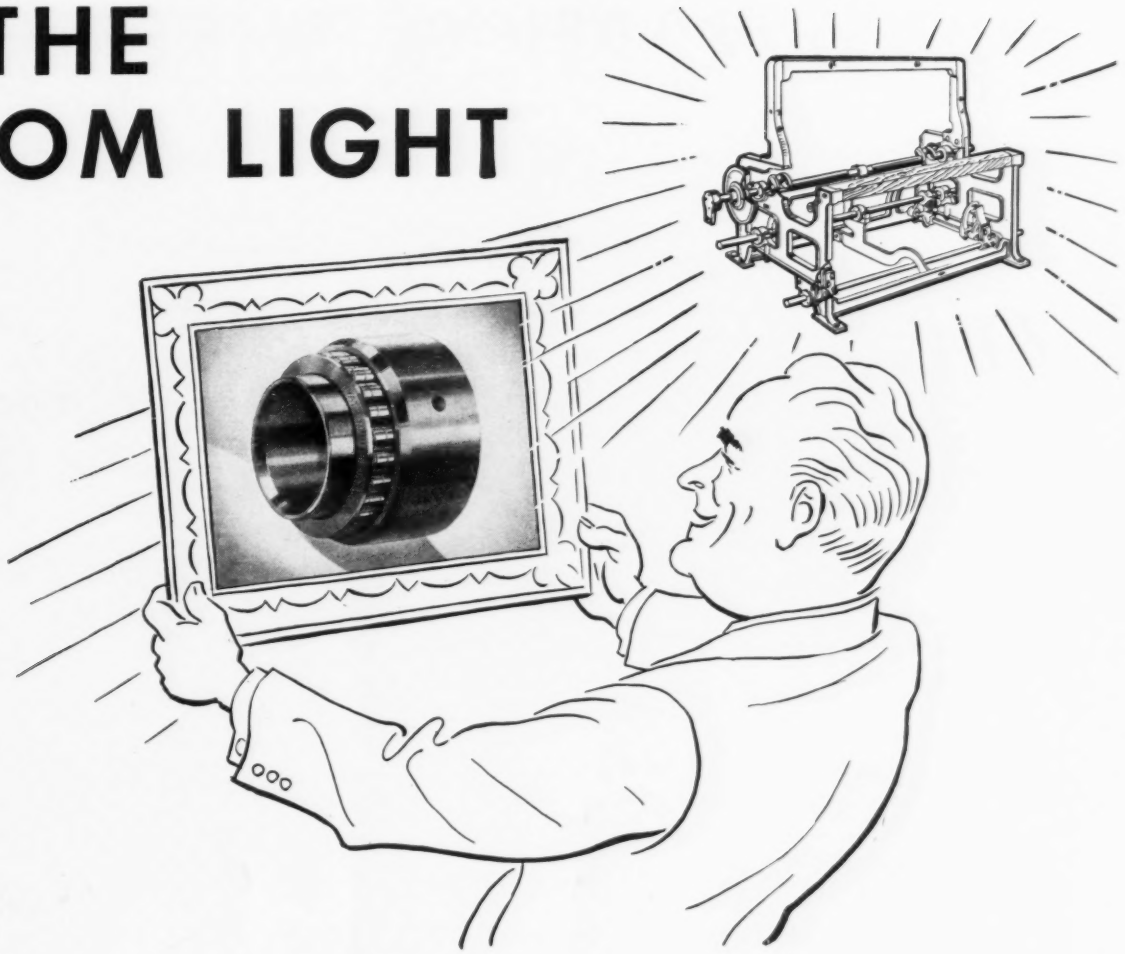
Brace bar locking device permits quick removal without interfering with heddles or warp ends. Rigid assembly — no sway in any direction.

Emmons

EMMONS LOOM HARNESS COMPANY
Lawrence, Massachusetts · · · Charlotte, N. C.

"CERTIFIED" STEEL HEDDLES · MULTIPLIED YARN SPACE REEDS · CHAFELESS CORD COTTON HARNESS

IN THE LOOM LIGHT



SAID I. L. Weavitt, the great mill executive, "I really never got this picture until I unsnaffled my mind from office routine and actually regarded it in the Light of the Loom".

"Never studied art or engineering. Been too busy in the mill business. But the other day my superintendent and overseer came in the office and told me about this business of equipping new looms with Hyatt Roller Bearings".

"You see those shiny rollers?" said Sam the Super. "Well, they're the secret of the whole idea. They roll around in hardened sleeves just as slick as grease and eliminate all the friction and binding we now get from shafts rubbing in old style cast iron bearings".

"Say no more" says I. "I see it now. They're bound to save power, prevent wear and vibration and reduce repair costs. They'll enable us to produce more and better cloth".

"The Roaring Creek Mill's got 'em" says Dick, my overseer. "Their weavers sure like 'em, too. They tell me that big mills all over this country and in England are having their looms come equipped with Hyatts".

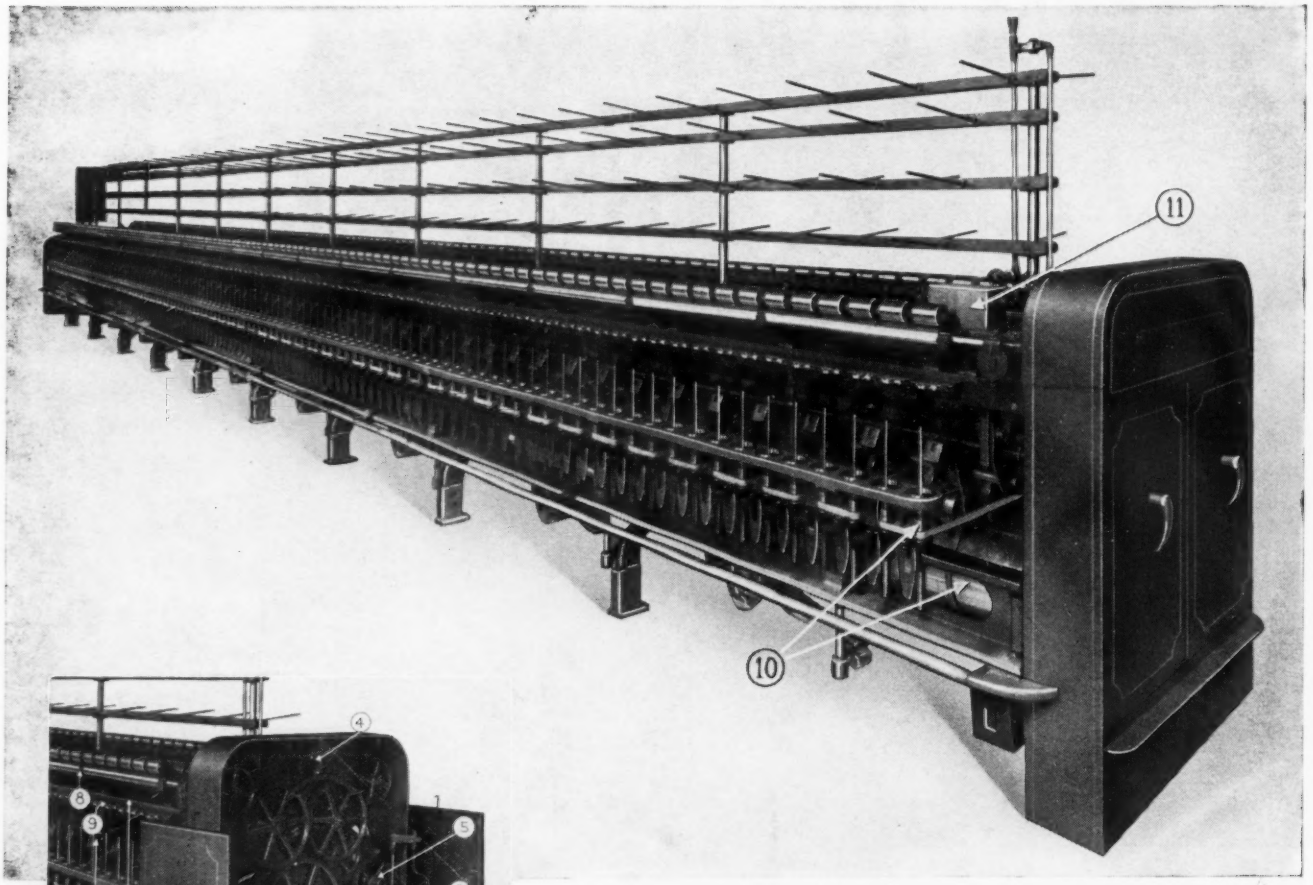
"O. K. Boys", I interpose. "When the loom salesman calls with the specifications I'll tell him to write in 'Hyatt Roller Bearings' next to crankshaft, camshaft, rockershaft, take-up and dobby".

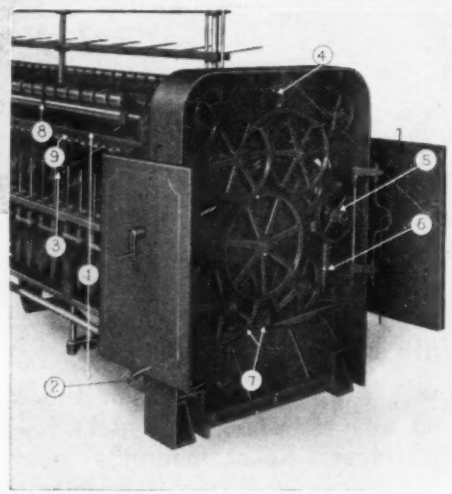
• • •

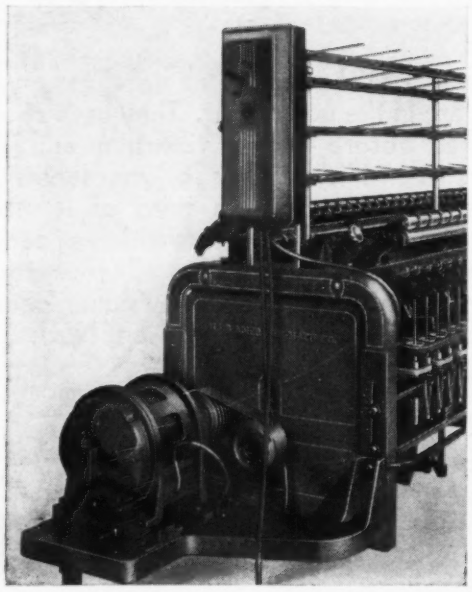
Mr. Weavitt got the picture all right, for Hyatts certainly are in the Loom light. They have special rollers that absorb shock, vibration and misalignment . . . will do plenty for your looms . . . 20 years experience and a third of a million bearings in all types of looms have proved the case. Specify Hyatts for all your textile machinery. Hyatt Bearings Division, General Motors Sales Corporation, Harrison, N. J.

HYATT *Roller Bearings*

THE MODEL G TWISTER







ANOTHER NEW H&B MACHINE WITH 11 MAJOR FEATURES

1. Built extra low (37" roller beam) for convenience of operation. **2.** Model B builder. Builder chain increased in size and hardened to insure long life. **3.** Reversible tension device. **4.** Electric stop motion. When doors are opened, machine stops. **5.** Ring rail release for quick doffing. **6.** Ball bearing thrust washer for builder drive, which eliminates dwelling at end of traverse. **7.** Helical cut cylinder and jack gears eliminate noise and insure longer life. **8.** Moraine steps for bottom roll bearings eliminate oiling. **9.** New type traversing metallic thread board. **10.** Ball bearing cylinder and spindles for power saving. **11.** Automatic water feed control.

A recent test of this machine in a New England mill showed a considerable saving in horsepower over twisters of the conventional type. Let us figure on modernizing your twister department.

H & B AMERICAN MACHINE COMPANY
Textile Mill Machinery
PLANT AT PAWTUCKET, RHODE ISLAND

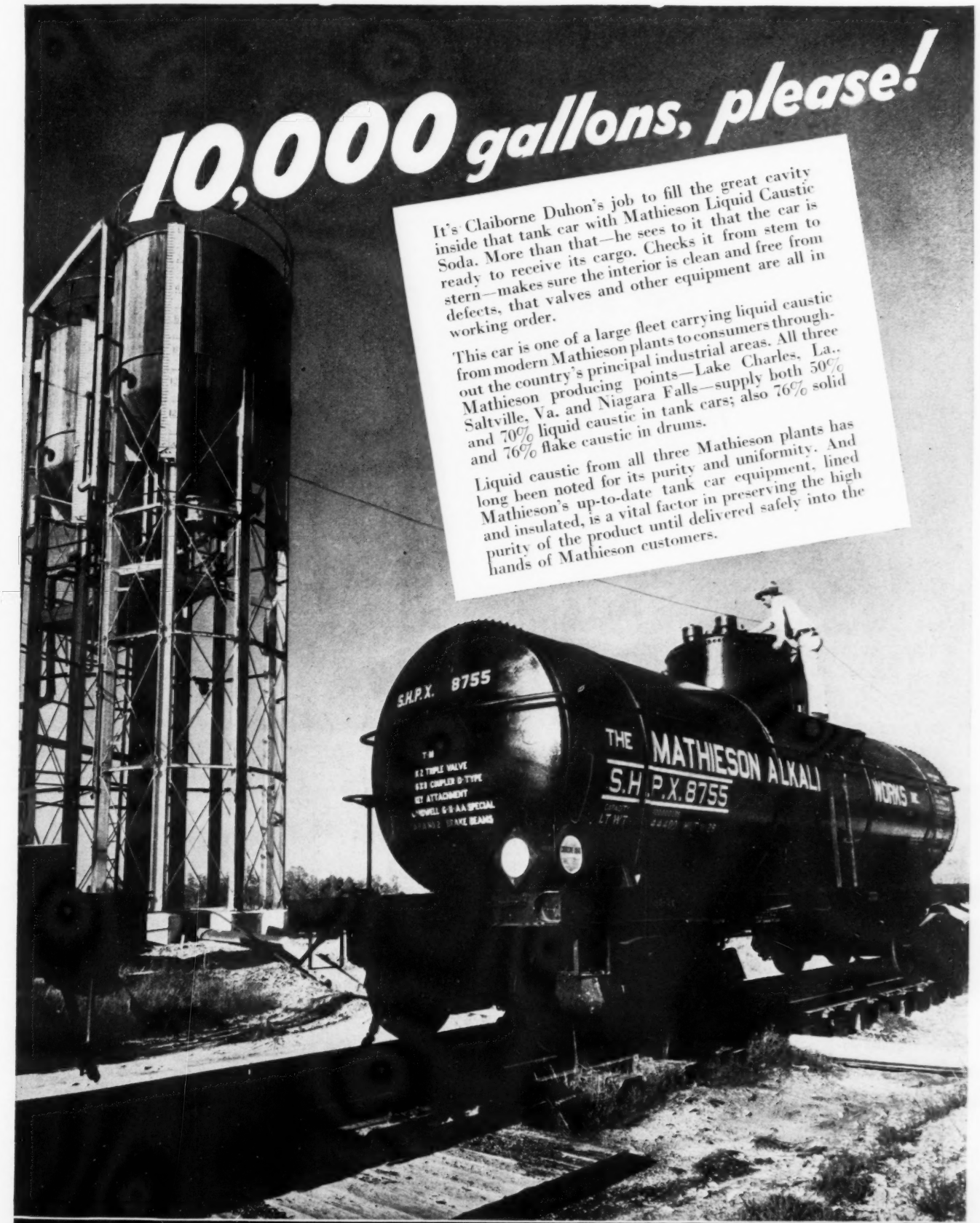
Boston office: 161 Devonshire St. • *Atlanta office:* 815 Citizens & Southern National Bank Bldg. • *Charlotte office:* 1201-3 Johnston Bldg.

10,000 gallons, please!

It's Claiborne Duhon's job to fill the great cavity inside that tank car with Mathieson Liquid Caustic Soda. More than that—he sees to it that the car is ready to receive its cargo. Checks it from stem to stern—makes sure the interior is clean and free from defects, that valves and other equipment are all in working order.

This car is one of a large fleet carrying liquid caustic from modern Mathieson plants to consumers throughout the country's principal industrial areas. All three Mathieson producing points—Lake Charles, La., Saltville, Va. and Niagara Falls—supply both 50% and 70% liquid caustic in tank cars; also 76% solid and 76% flake caustic in drums.

Liquid caustic from all three Mathieson plants has long been noted for its purity and uniformity. And Mathieson's up-to-date tank car equipment, lined and insulated, is a vital factor in preserving the high purity of the product until delivered safely into the hands of Mathieson customers.



Mathieson Chemicals

THE MATHIESON ALKALI WORKS (INC.)
60 E. 42ND STREET, NEW YORK, N. Y.

SODA ASH . . . CAUSTIC SODA . . . BICARBONATE OF SODA . . . LIQUID CHLORINE . . . BLEACHING POWDER . . HTH PRODUCTS . . . AMMONIA, ANHYDROUS and AQUA . . . FUSED ALKALI PRODUCTS . . . CCH (INDUSTRIAL HYPOCHLORITE) . . . DRY ICE . . . CARBONIC GAS . . . ANALYTICAL SODIUM CHLORITE

GENERAL ELECTRIC MAKES LAMPS FOR

PERHAPS I DO NEED MORE LIGHT BUT IT'S TOO EXPENSIVE!
That's what you think! ...G-E LAMPS COST LESS AND BETTER LIGHTING ACTUALLY SAVES YOU MONEY

Here's why:

1. G-E LAMPS GIVE MORE LIGHT FOR LESS MONEY because scientific research and development year after year are producing lamps which operate at constantly greater efficiencies, yet sell at continually lower prices.

2. G-E MAKES A COMPLETE LINE OF LAMPS . . . representing *every* type of electric lamp practical to industry. This fact assures you of an unbiased recommendation for lighting to fit every need.

3. SIXTY YEARS OF MANUFACTURING and application experience is back of every lamp General Electric makes. Many of these lamps must pass as many as 480 checks, tests, and inspections to assure satisfactory performance.

4. G-E's SYSTEM OF STRATEGICALLY located warehouses, supplemented by wholesalers' stocks, practically assures 24-hour delivery anywhere in the United States. This saves you time and storage space.

5. G-E's LIGHTING ENGINEERING SERVICE at Nela Park and in 17 key cities offers you its wealth of knowledge in solving lighting problems and in helping you get the most for your lighting dollar. It's yours for the asking.

• • •

For specific information, write the General Electric Lamp Division nearest you, or Nela Park, Cleveland, Ohio.

Get these benefits by light-conditioning your plant with G-E lamps!

Let a G-E Lighting Specialist show you how light-conditioning can improve working conditions and actually help increase profits by:

1. Increasing efficiency of operation.
2. Providing means for more accurate work.
3. Effecting more efficient maintenance of equipment.
4. Conserving eyesight.
5. Reducing accidents.
6. Improving morale because of brighter more cheerful working conditions.

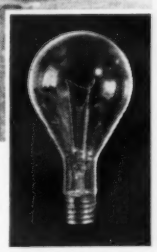
• • •

For further information, write General Electric Company, Lamp Department, 166-C-L Nela Park, Cleveland, Ohio.

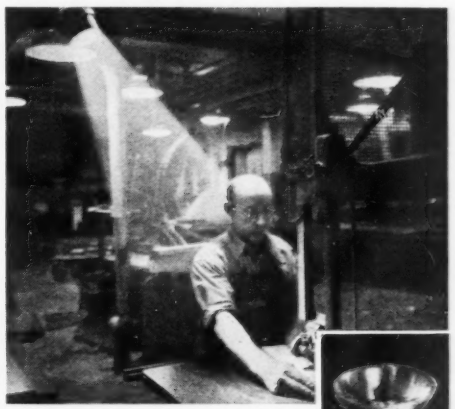
GENERAL ELECTRIC

LAMP DEPARTMENT, NELA PARK, CLEVELAND, OHIO

EVERY INDUSTRIAL LIGHTING NEED!



G-E MAZDA filament lamps fulfill most industrial requirements for general lighting service. They are made in sizes from 15 up to 1500 watts, and available in certain sizes in clear, inside frosted, white bowl, silvered bowl, and daylight bulbs.



G-E MAZDA Projector lamps concentrate light where it's needed. Lens, reflector, and filament are one sealed unit.

G-E MAZDA F (fluorescent) lamps make possible higher lighting levels and are 50% cooler than filament lamps. Available in daylight, white, and five colors, in several lengths and wattages.

G-E MAZDA H (mercury) lamps—400 watt size shown—have high efficiency, long life and ruggedness—very practical for high bay areas. May be used advantageously either alone or in combination with filament lamps.

RF 85 WATT (Cooper Hewitt fluorescent) lamps (100 watts overall) for high levels of industrial illumination. Make night work as pleasant as day work. Have long life . . . low operating cost.

COOPER HEWITT mercury vapor lamps are long tube light sources free from shadow, and easy on eyes because they contain only cool yellow-green rays. Excellent for showing up small objects and detail.

GENERAL ELECTRIC

LAMP DEPARTMENT, NELA PARK, CLEVELAND, OHIO

AHCOVEL-A

A BETTER SYNTHETIC SOFTENER OF THE SUBSTANTIVE TYPE

ADDS NEW SOFTNESS AND DRAPE TO RAYONS

1. Also suitable for cotton, wool and silk. 2. Resistant to repeated washing and dry cleaning. 3. Non-greasy, odorless finish, which will not discolor with heat or age. 4. Easy to apply; economical to use.

★WRITE FOR DESCRIPTIVE CIRCULARS AND SAMPLES.

ARNOLD-HOFFMAN & COMPANY, INC.

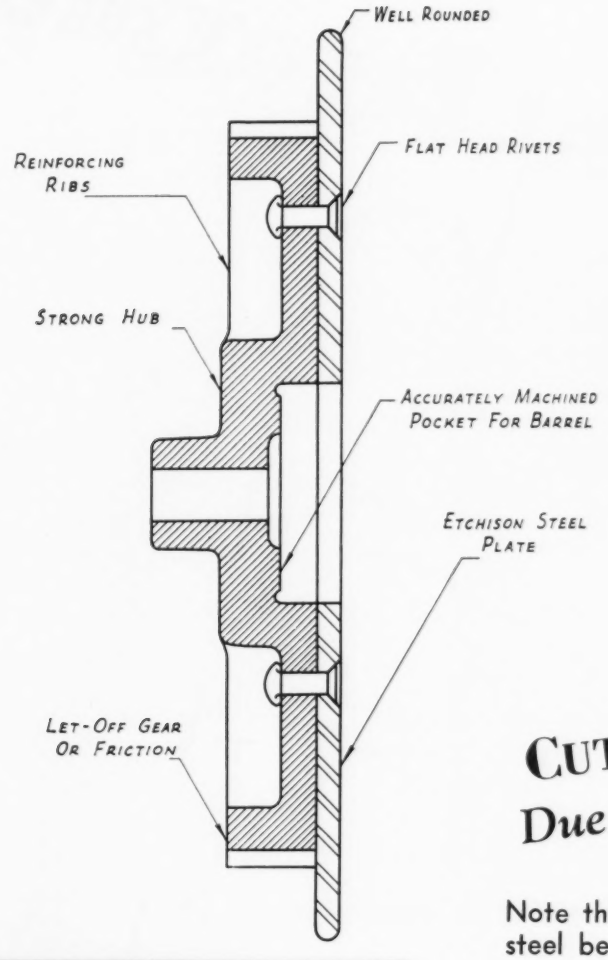
Established 1815 **PROVIDENCE, RHODE ISLAND** Plant at Dighton, Mass.

NEW YORK • BOSTON • PHILADELPHIA • CHARLOTTE • COLUMBUS • GREENVILLE

PROTECT YOUR WARPS

With ETCHISON Patented Steel Beam Heads

(PAT. NO. 1,594,159)



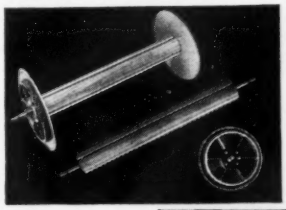
PROVED—
By Performance

CUT DOWN LOSSES
Due to Beam Head Breakage

Note the construction details of an Etchison type steel beam head. A steel plate provided with a cast iron gear or friction let-off replaces the usual cast iron head. The steel plate will not break under the most severe treatment. Both the steel plate and let-off are accurately machined before fastening together with rivets, and the finished head is straight and true. An Etchison steel beam head is practically indestructible. They cost more than a cast iron head, but are worth the difference. They save not only in breakage but also in losses from damaged warps, caused by broken heads. Etchison steel beam heads will help increase efficiency in your weave room.

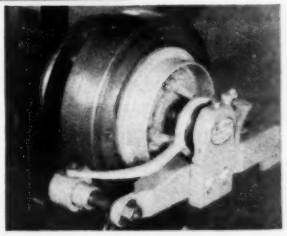
Also manufacturers of special textile machinery, cloth room machinery and textile repair parts.

Other WEST POINT Products



LOOM BEAMS AND BEAM-HEADS ... West Point loom beams and beam-heads are superior in their operation and economy.

ENERGY LOOM DRIVE ... makes possible higher production per loom per hour ... provides smoother loom operation.

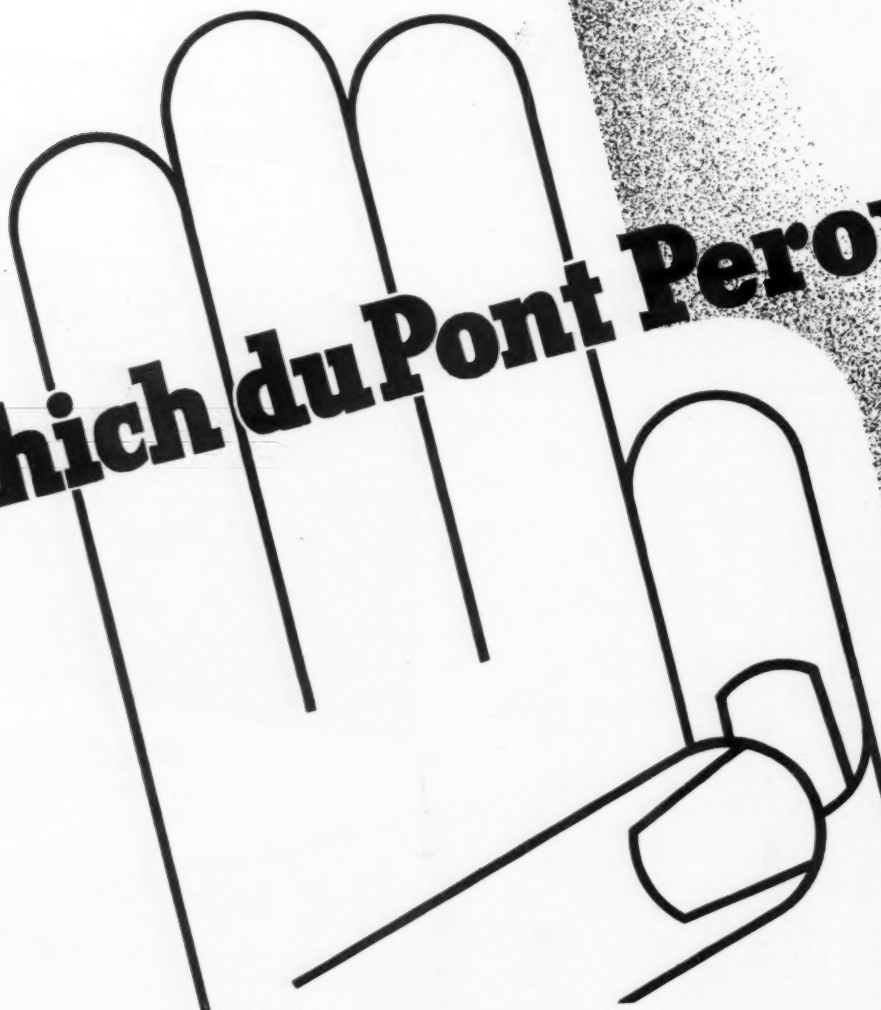


WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA

Which du Pont Peroxide?



It depends upon what you want to Bleach and how you want to do it!

You have your individual problems - your equipment must be used for a wide variety of goods - each with different requirements. Efficient production - bleaches have to meet exacting and definite specifications - costs must be kept down - all these things and more must be faced daily. Because du Pont knows these conditions, three Peroxides are offered. With them, every specific bleaching need can be met.

Let our technical service man work with you in selecting the right bleach. He speaks your language - and his assistance, backed by years of practical experience, is well worth having. There's no obligation. Just call or write us.

DU PONT
REG. U. S. PAT. OFF.

PEROXIDES

ALBONE*
Du Pont Hydrogen Peroxide
100 vol. Electrolytic

DFF†SOLOZONE*
(DuPont Sodium Peroxide, dustless and free flowing)

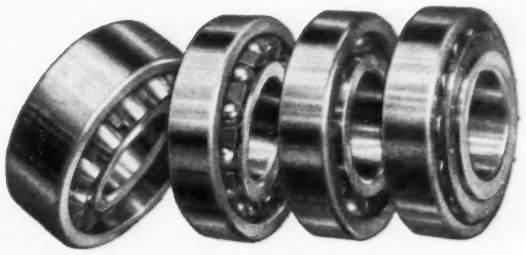
SODIUM PERBORATE

*Reg. U. S. Pat. Off.
† Trade Mark

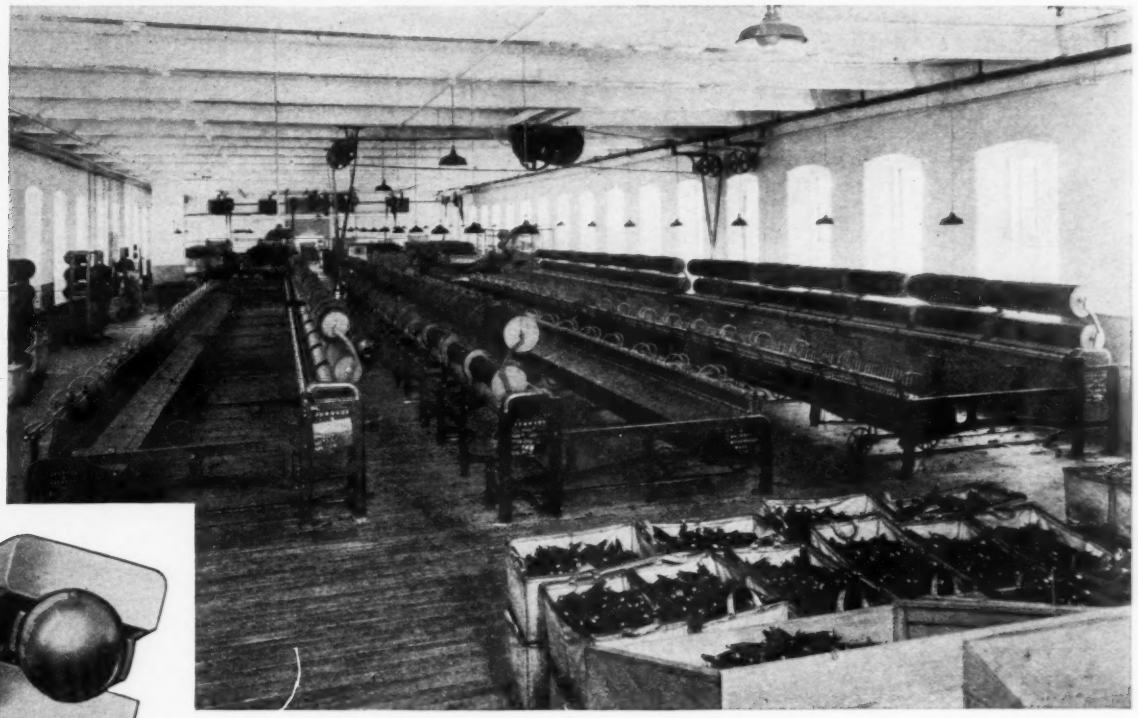
DU PONT
REG. U. S. PAT. OFF.

The R. & H. Chemicals Department
E. I. DU PONT DE NEMOURS & COMPANY (INC.)
Wilmington, Delaware

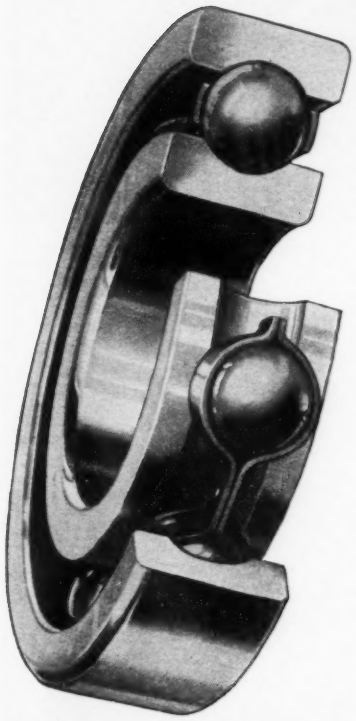
District Sales Offices: Baltimore, Boston, Charlotte, Chicago, Cleveland, Kansas City, Newark, New York, Philadelphia, Pittsburgh, San Francisco



GIANT PACKAGE MULES ARE AS MODERN AS THE BEARINGS ON THEIR MOST IMPORTANT ROTATING PARTS



● *Built by Johnson & Bassett, Inc.*



SKF-EQUIPPED SHAFTS MEET TODAY'S DEMANDS FOR HIGH SPEEDS ON TEXTILE MACHINERY OF ALL KINDS

● Modern machines that produce today's marvelous textiles leave old production records in their wake. For their shafts, moving smoothly on dependable SKF Bearings, speed up newer and better ways of doing things.

Typical of the SKF-equipped machines are these Giant Package Mules. High speeds are assured by SKF accuracy and full load carrying capacity. Labor is saved and production delays are eliminated because machine life is never cut short by bearing trouble. Lubrication costs are stepped down to a minimum because a little lubricant lasts a long time.

You, too, can give your production a boost by selecting SKF Bearings. More than 3000 SKF Bearing types and sizes are at your service. 4119

SKF
Ball and Roller Bearings

SKF INDUSTRIES, INC., FRONT ST. & ERIE AVE., PHILA., PA.

"WE'VE PEPPED UP PRODUCTION

since we adopted

GULF'S HIGHER QUALITY OILS!..

. . . and still keep the maintenance-cost curve on the decline,"

. . . SAY LEADING PLANT OPERATORS.

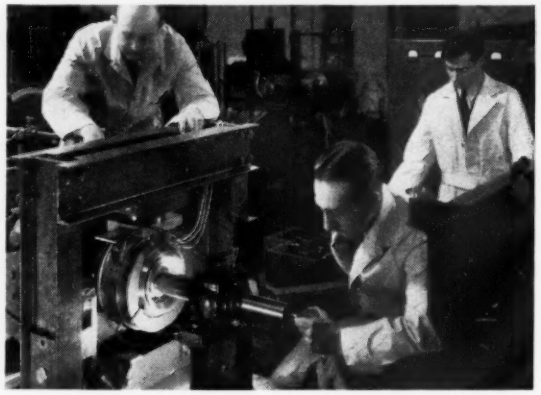
"WE'RE being rewarded for the sound lubrication policy we adopted last year," says this operating official. "Now with production stepped up, we're having no mechanical difficulties and are enjoying still lower costs for maintenance. It has paid us to put the Gulf engineer's recommendations into practice."

Without further delay, you can put into operation in your plant a modern lubrication procedure that will insure you against the hazards of mechanical difficulties and losses which often accompany increased production schedules.

Ask the Gulf engineer who calls on you to work with your operating men toward the attainment of more efficient lubrication for all your equipment. His recommendations are based on sound knowledge and broad experience in the lubrication of equipment similar to yours. Gulf Oil Corporation, Gulf Refining Company, Pittsburgh, Pa.

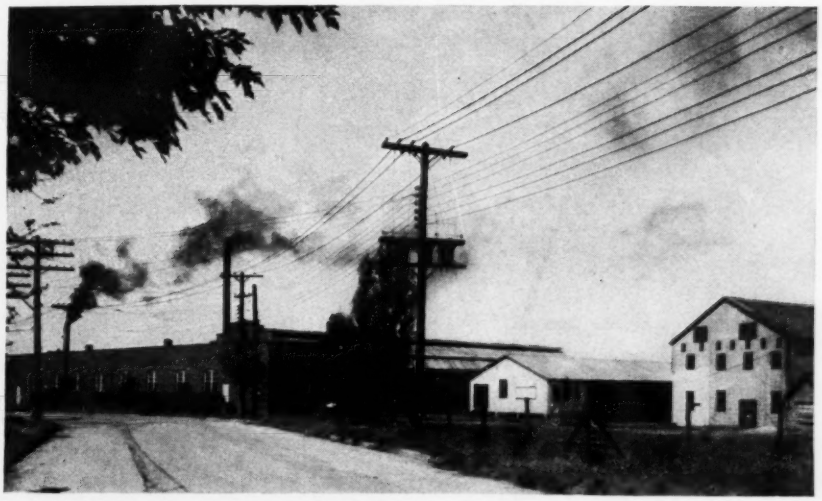
GULF INDUSTRIAL LUBRICATION

To Maintain Quality . . .



. . . GULF RESEARCH MEN continually test lubricants with a wide variety of specially designed equipment. Oils and greases are subjected to a wider range of operating conditions than are encountered in actual service. Thus Gulf's engineers are able to recommend lubricants which not only meet the prevailing conditions, but provide an *extra margin of safety!*

Made BY and FOR Southern Industry!



JOHNSON CITY, TENN. Plant of U S Bobbin & Shuttle Co., which specializes in the manufacture of cardroom bobbins and skewers.

GREENVILLE, S. C. Main office and Plant of U S Bobbin & Shuttle Co., which specializes in the manufacture of quills and spinning bobbins.

For quick service in quality products, call:

U S BOBBIN & SHUTTLE CO.

Greenville, South Carolina

Charlotte, N. C., Johnson City, Tenn.

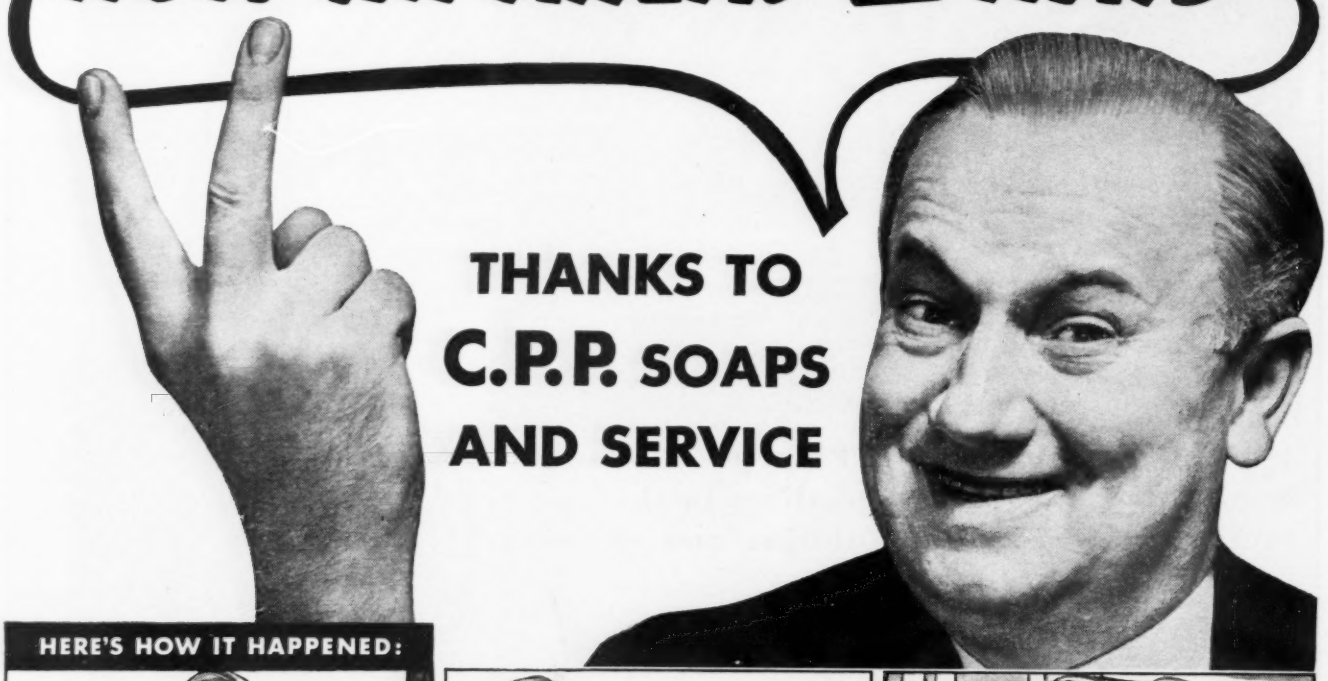
SOUTHERN REPRESENTATIVES: A. D. ROPER, M. OUSLEY, E. R. HOLT, D. C. RAGAN

ALABAMA AGENT: YOUNG & VANN SUPPLY CO., BIRMINGHAM

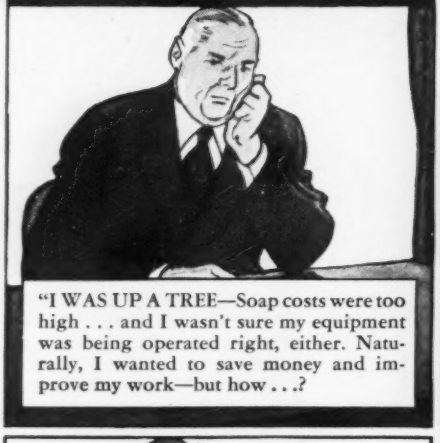
BETTER BOBBINS • SPOOLS • CONES • SHUTTLES

NOW I'M AHEAD 2 WAYS

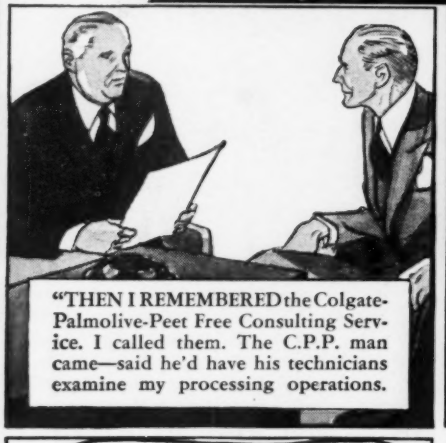
THANKS TO C.P.P. SOAPS AND SERVICE



HERE'S HOW IT HAPPENED:



"I WAS UP A TREE—Soap costs were too high . . . and I wasn't sure my equipment was being operated right, either. Naturally, I wanted to save money and improve my work—but how . . .?



"THEN I REMEMBERED the Colgate-Palmolive-Peet Free Consulting Service. I called them. The C.P.P. man came—said he'd have his technicians examine my processing operations.

"IN A FEW WEEKS the C.P.P. man came back. He showed me what he thought would be the solution to my problem . . . suggested I try it. It looked reasonable to me, so I decided to arrange a test run.

"THE RESULTS WERE GRAND! Soap costs were down 20%... I was saving time and money by more efficient processing, too. And to top it all, my finished goods turned out better than ever."

NO matter what *your* processing requirements may be, in the *complete* line of Colgate-Palmolive-Peet Products you will find detergents and wetting agents to *exactly fit your needs.* Because of the high standards under which C.P.P. processing agents are produced, they usually *cost less to use.* And, standardizing on the C.P.P. Line will not only save you money—but increase your percentage of top-price goods, too!

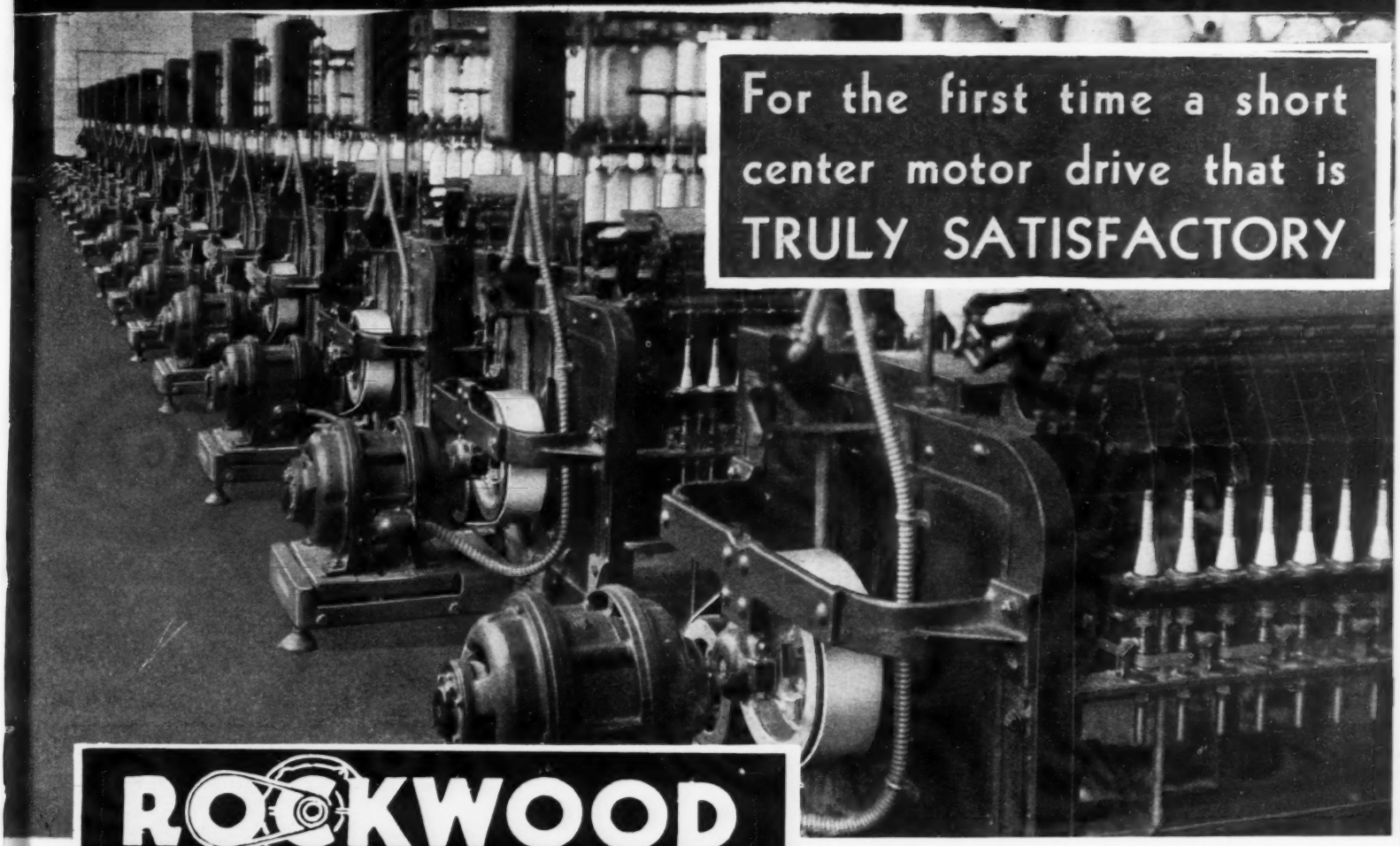
To help you select the best agents for your needs, we invite you to use our Free Consulting Service. Our technicians will gladly answer your questions, without cost or obligation. For full information, ask your C.P.P. representative, or write to us.

COLGATE-PALMOLIVE-PEET CO.

Industrial Department, Jersey City, N. J.

KANSAS CITY, KANS. JEFFERSONVILLE, IND. BERKELEY, CALIF.

GREENWOOD COTTON MILL CHOSE ROCKWOOD pivoted-motor DRIVES



ROCKWOOD PIVOTED MOTOR DRIVE

The Greenwood group of cotton mills uses many hundreds of Rockwood Drives—on spinning frames and for ceiling mounted motors driving lineshafts.

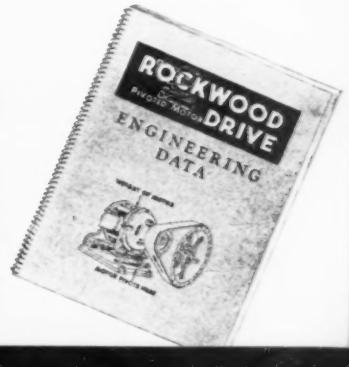
Another great cotton mill assures increased production and a better quality by using Rockwood pivoted-motor Drives.

Rockwood Drives assure more production *and* a better quality of work from the machines they drive because their driven machine speeds are better and more dependably maintained than with any other motor drive.

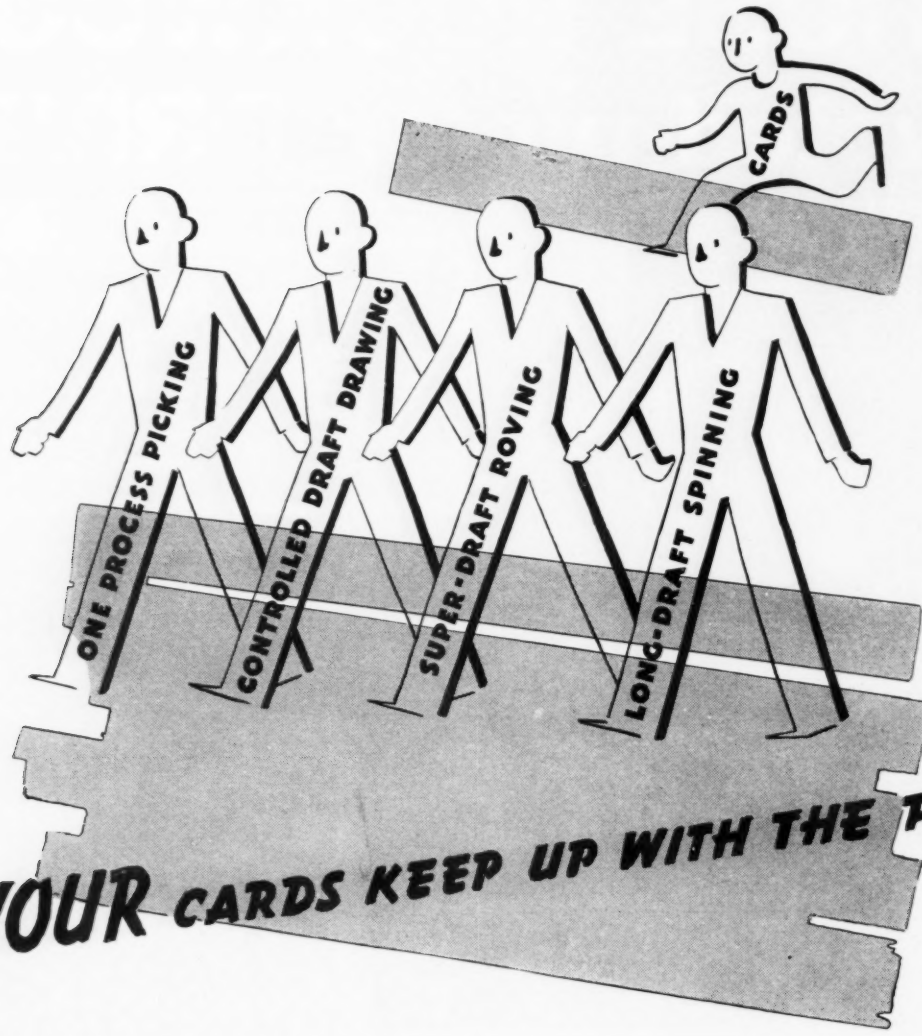
When cotton mills modernize for cost reduction, Rockwood Drives' unfailing fine performance and their unquestioned power economy are bound to be important factors. Ask Rockwood engineers to show you how these fine drives can give you more production, better quality and a longer profit in your mill operations.

A NEW BOOK TO HELP YOU SELECT AND PRICE ROCKWOOD SHORT CENTER PIVOTED-MOTOR DRIVES

Just off the press—a new book giving engineering data on Rockwood Drives you will find invaluable. Makes it easy to select and price complete drives, including the belts. Every cotton mill superintendent and engineer will want a copy. SECURE YOUR COPY NOW FROM YOUR NEAREST ROCKWOOD DEALER or write direct



ROCKWOOD MANUFACTURING CO.
Indianapolis, Indiana



HELP YOUR CARDS KEEP UP WITH THE PARADE

Interest in one-process picking, controlled-draft drawing, super-draft roving and long-draft spinning has caused neglect of cards. Yet the latter MUST perform efficiently, if they are to keep pace with other processes and not hold up progress.

For BETTER card performance we offer these suggestions:—

1. Let us make a survey of your cards to determine the condition of all clothing, chains, bearings and other wearing parts. Our written report will reveal card conditions causing bad work and unnecessary waste and will recommend only necessary repairs, classifying their urgency so you can budget the cost over a period of months.
2. Install our new metallic feed roll for cotton and rayon cards, which maintains a firm hold on the lap, assuring even feeding and thereby reducing cylinder jams.
3. Try our specially developed lickerin wire for rayon cards.

Ashworth Products give superior performance because of UNIFORM manufacturing methods.

Ashworth Service is dependable because of—

3 FACTORIES
FALL RIVER, WORCESTER, PHILADELPHIA

6 REPAIR SHOPS
FALL RIVER, PHILADELPHIA, CHARLOTTE, GREENVILLE, ATLANTA, DALLAS

7 DISTRIBUTING POINTS
FALL RIVER, WORCESTER, PHILADELPHIA, CHARLOTTE, GREENVILLE, ATLANTA, DALLAS

ASHWORTH BROS., INC., Woolen Div., AMERICAN CARD CLOTHING CO.

Factories, Repair Shops and Distributing Points as above. Southwestern Representative: Textile Supply Co., Dallas, Texas.

★PRODUCTS AND SERVICES: Card Clothing for Cotton, Wool, Worsted, Silk and Asbestos Cards and for All Types of Napping Machinery • • Brusher Clothing and Card Clothing for Special Purposes • • Lickerin Wire and Garnet Wire • • Sole Distributors for Platt's Metallic Wire • • Lickerins and Top Flats Re-clothed at All Plants.

THE *Ultra*—A STREAMLINE PADDER BY *Butterworth*

This machine is as new as tomorrow. It has a micrometer pressure adjustment which is easily and almost instantly applied by the hand wheel which is also used to raise the roll from contact when not in use . . . There is another micrometer adjustment arrangement for applying pressure to each side of roll to insure uniform dyeing . . . The Padder can be operated as *a unit* by addition of friction let-off and winder or *in range* with other machines . . . Ultra Padders are made in three sizes of which the one illustrated is the largest. They all have ball bearings of latest design. Standard tub is all stainless steel with stainless steel immersion rolls as required.

H. W. BUTTERWORTH & SONS CO., PHILADELPHIA, PA.

Established 1820

PLANTS at PHILADELPHIA and BETHAYRES, PA.

New England Office:
TURK'S HEAD BUILDING
Providence, R. I.

Southern Office:
JOHNSTON BUILDING
Charlotte, N. C.

In Canada:
W. J. WESTAWAY CO.
Hamilton, Ontario

IT COST US $4,000–

but will more than pay for itself the first year!

ANOTHER SUCCESS STORY FEATURING TAYLOR AUTOMATIC SLASHER CONTROL

SAID *a North Carolina Mill executive in a south-bound club car the other day:* "Mills today are putting slasher control on a more scientific basis. We recently installed a complete Taylor Slasher Control System in our mill. Yes . . . it cost us around $4,000, but it will more than pay us back before next year!

"Taylor engineers did a wonderful job of investigating our needs, supervising the installation, and making sure the job turned out satisfactorily for us. We are completely satisfied with this Taylor Control!"

* * *

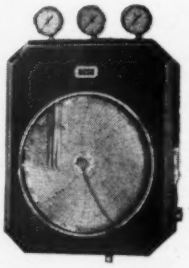
This is a typical example of the modernization control that's taking place in the textile business today. There are other examples. For instance . . .

Another mill, taking advantage of a Taylor Slasher Control System for the first year, reports savings of $2,250 in steam and size—alone! They also cut loom stops 21–32%, increased weave room production 1–2%, and got a more uniform warp, a more *salable* cloth!

You, too, can make savings like these—in proportion to the size of your mill—with a Taylor System of Slasher Control. That's because inexact temperature regulation is most likely eating away your profits, too. So cut *your* slasher costs and standardize *your* fabric quality the Taylor way. You'll find this Taylor Control is quick to pay for itself.

So let a Taylor representative give you more details. There's no obligation. Write Taylor Instrument Companies, Rochester, N. Y. Plant also in Toronto, Canada. Manufacturers in Great Britain: Short & Mason, Ltd., London, Eng.

The end of Slasher troubles—for you! This precision instrument — a Taylor Recording Fulscope Controller—is the heart of a Taylor Control System. It is easily adjusted to maintain any slasher temperature you want. It writes a handy-to-file record of its accurate control.



Taylor

Indicating Recording Controlling

TEMPERATURE, PRESSURE, FLOW *and* **LEVEL INSTRUMENTS**

MILL OPERATORS are amazed at the tremendously stepped-up hiding power of the new DULUX High-Hiding Mill White. They have found that many paint jobs which would normally require two coats can now be done with one.

And that proves that DULUX can save *you* time and money. You buy fewer gallons of paint . . . application costs are lower . . . one coat takes less time to apply than two . . . your plant is idle for a shorter time. In cases where the present finish is very poor, a priming undercoat may be necessary.

Whiter at the start, it stays whiter and is more durable—this new High-Hiding DULUX means long-run economy. It saves money on overhead because it needs *fewer* repaintings. Send in the coupon.

SEND FOR THIS FREE BOOK

DU PONT
REG. U. S. PAT. OFF.

DULUX

REG. U. S. PAT. OFF.

HIGH-HIDING MILL WHITE

E. I. du Pont de Nemours & Co. (Inc.), Dept. C-129
Finishes Division, Wilmington, Delaware

Please see that I get complete information about DULUX High-Hiding Mill White—and your new booklet.

Name .....

Address .....

City ..... State .....

How Long Since You Checked on RECORDING THERMOMETERS?

Today's conditions call for a new review of the profit-insurance possibilities of these simpler, surer, *mono-therm* instruments.

Was your last analysis of the possibilities for saving money with Recording Thermometers made back in the days when capital outlays were "out"? Did you decide to "let things ride for awhile," knowing that the addition of recording thermometers at one or more points would actually be a sound investment once profits were in sight again?

In that case, now's the time to recheck the situation in the light of rising costs of raw materials and the consequent higher costs of waste and operating delays. What's more, Foxboro's modern mono-therm system adds new factors of simplicity, surety and rapid response to the "go-ahead" side of the investment equation. You get the accurate records you need, day in and day out, without pampering or service expense. Today, on a unit-of-production basis, accurate temperature records are a cheaper form of profit-insurance than ever before!

Why not call in your superintendent and check over those trouble-spots that a few good, responsive Temperature Recorders might eliminate once and for all? The Foxboro man in your locality can suggest the particular type that will give you the records you want, and pay for itself most quickly out of its own savings. Or, if you wish, we'll mail you a 40-page bulletin, "Recording Thermometers," that gives facts and figures you're bound to need. Write for it today. **The Foxboro Company, 18 Neponset Avenue, Foxboro, Massachusetts, U. S. A.** Branch offices in 25 principal cities.

✓ CHECK THESE APPLICATIONS

Recent orders for Foxboro Instruments have included Recording Thermometers for the following textile plant needs:

- Ageing Machine
- Cloth Strainer
- Dipping Vat
- Hosiery Dye Vat
- Kier
- Knitting Room
- Loop Dryer
- Mangle
- Mixing Room
- Processing Water
- Rayon Slasher Size Line
- Shredder Room
- Size Kettle
- Slasher Cylinder
- Tenter Housing
- Tunnel Dryer
- Wash Wheel
- Weave Room
- Wool Scouring Bowl

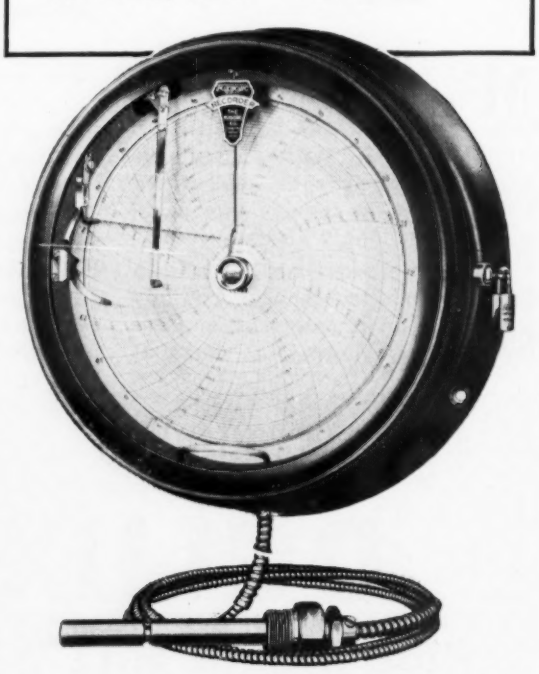


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Fig. 2129
Single Wedge Disc
Non-rising Stem

Fig. 2125
Double Wedge Disc
Rising Stem

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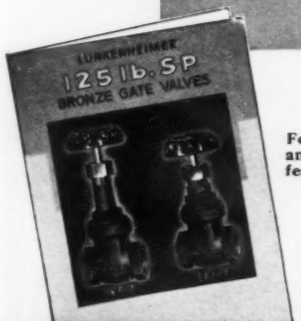

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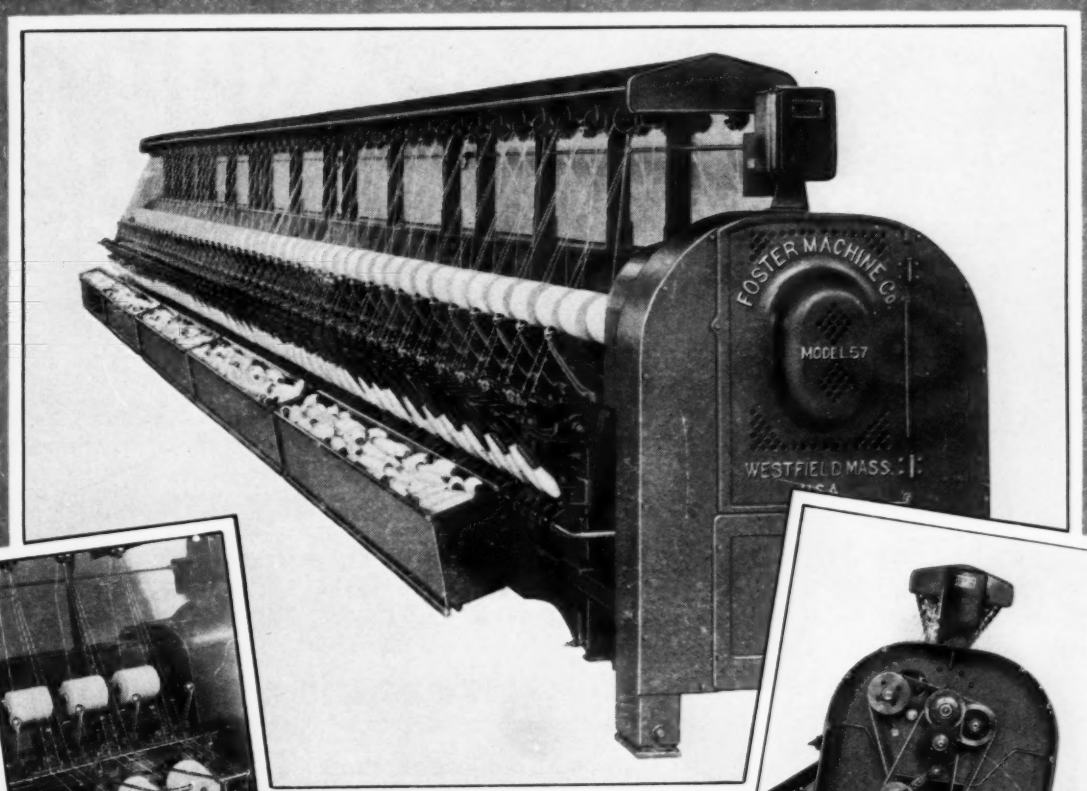

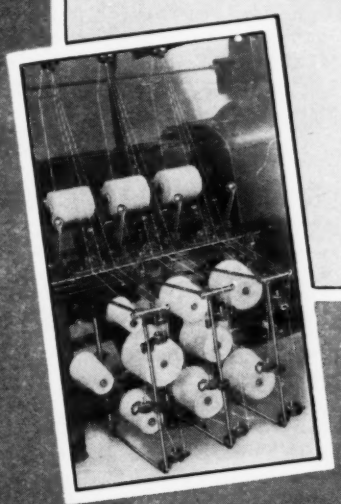

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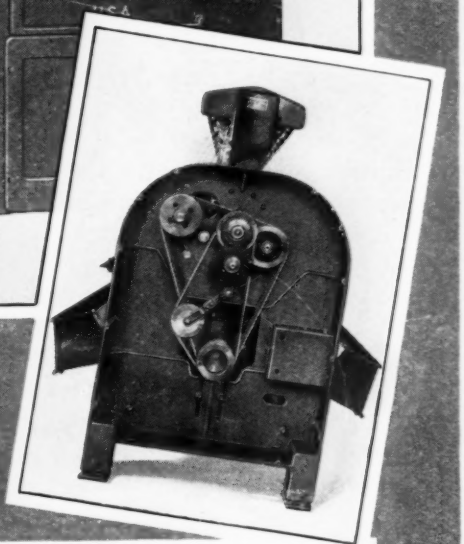

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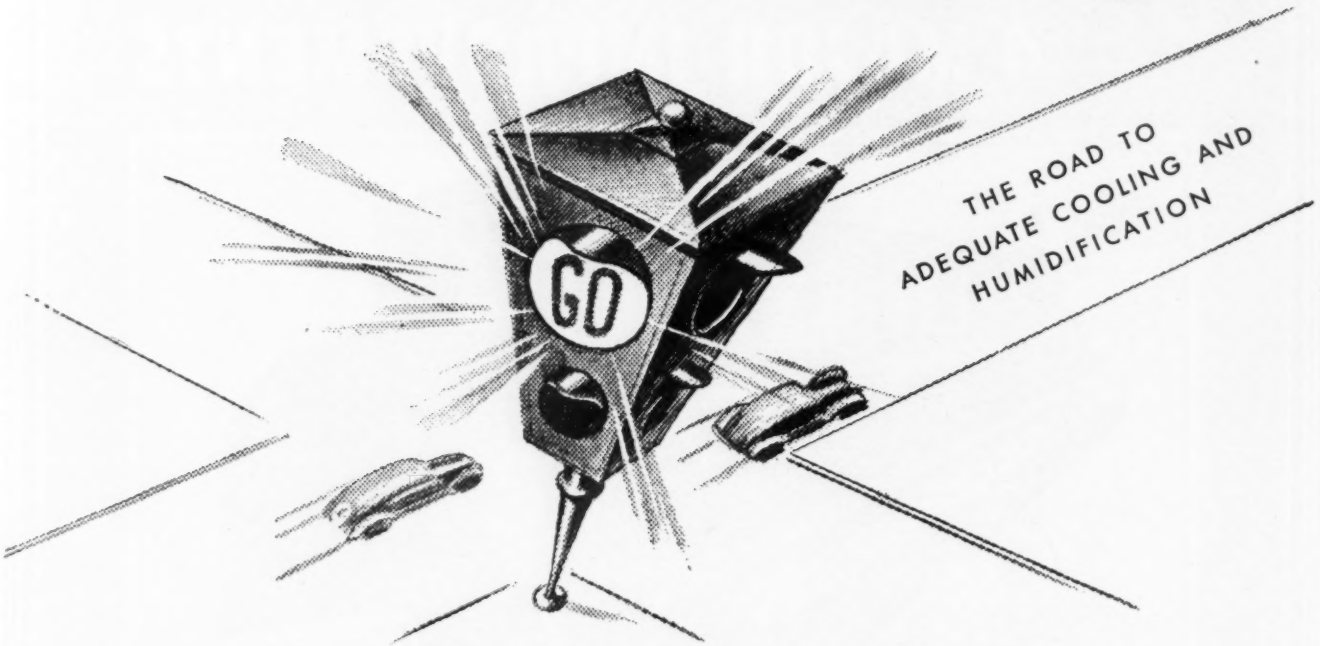

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about

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Figs. 1645-41 Pat's. Pend.

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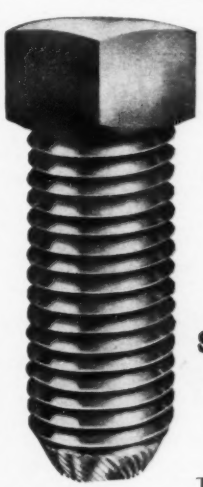

Fig. 1646 Pat's. Pend'g.

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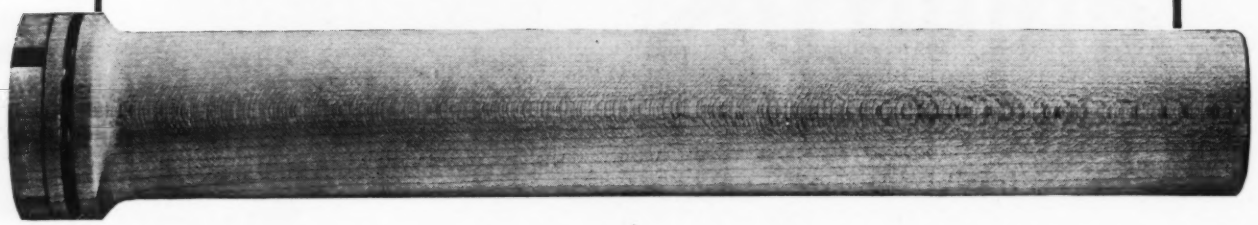

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SERVING THE
Textile Industries

DECEMBER, 1939
Vol. 103 No. 12

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IN THIS ISSUE

General and Technical—

The Mill Village; Should We Sell It? If So, to Whom? by Arnold M. Oland 55
The Role of Fencing in the Protection of Mill Property, by W. H. Bleecker 59
Surface Active Agents—Their Applications in the Wet-Processing of Textiles (Article 2), by Andrew J. Kelly 61
The Duerst Method of Figuring Progressive Yarn Twist 64
Spinning Room Practice (Article 7), by Horace L. Pratt 66-A
The Application of Naphthol Dyes to Cotton and Other Textiles (Article 2), by Joseph Lindsay, Jr. 67
Harmony Grove Mills Use Split Sliver Drawing 69
Records and Reports Help Control Weaving Seconds, by C. W. Howell 70
STA Hear Sanforizing Talk; Discuss Weaving Problems 72
Mill Subjects Discussed at Durham STA Meeting 74

Current Textile Topics—

N. C. State-Wide Textile Safety Contest 66
Digestive Period Comes After Sales-Price Spurt; Industry and War Demands; World Prices and American; Raw Cotton Trend Upward 76
New England Mill Situation; Broad Production Gain; Wave of Wage Increases; First Strike in 112 Years 78
"The Situation" as Seen Across an Executive's Desk 80
Let's Help with the Census 82
Comment on the Cotton Market 84
Textile Publications 84
Textile Book Reviews 86
New Equipment and Materials 88
Timely News Items with a Textile Slant 94
Third Quarter Rayon Output Substantially Above Year Ago 96
Personal Notes about Men You Know 98
An Old-Timer Says— 101
Annual Meeting of Phi Psi in Philadelphia April 11-13 103
Notes about Southern Mills 114

How Other Men Manage—

Comb on Card Feed Plate 105
Filling Bunch for Coarse or Fine Yarn 105
Foreign Matter in Cloth 106
Figuring Job for Battery Filler 106
Hard Ends on Dyed Stock 106
Width of Card Feed Plate 108
Some Views on Human Relations 110
Picker Speeds and Settings 112
The Old Card Doctor 112

Knitting Section—

"Uncle Glory" and Avo 119
Operating and Fixing Model ES Machines, (Article 9) by Emmett Starr 121
System to Keep Needles Working 124
Crooked Seam in Welt 124
Some Pointers on Streaks in Full-Fashioned Hose 126
Trouble with Picot Jacquard 129
Picot Turns Out on Full-Fashioned 130
Rust on Full-Fashioned 130
Efficiency Record 130
Trends and Highlights of the Knit Goods Markets 134
Forecast 135
Pictorial Presentation: Mercerized and Unmercerized Cotton Thread 136
Co-operative Mills Attract Attention 137
An Eye on the Knitting Mills 137
Trends—Yarn Markets 140

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New Edition of "Finishing Materials" Now Ready

Copies of our book "Finishing Materials" (second edition) are now available. This is the excellent discussion of materials used in textile finishing, by J. Andrew Clark which, in the new edition, has been augmented by a number of other articles by Mr. Clark on bleaching, mercerization, laboratory work, permanent finishes, etc. We quote Arthur R. Thompson, Jr., vice-president of the American Association of Textile Chemists and Colorists, who secured one of the first copies of the new edition:

"I am very much impressed with this book and feel you have contributed a most worthy collection of information for the textile finisher.. Every finishing plant in the country should have a copy of this book in their laboratory and in their superintendent's office."

◆

Can You Help?

"My brother-in-law, Herbert J. Lewis, Casilla 3502, Santiago, Chile, would like to be placed in touch with American textile manufacturers—particularly of cotton yarns, woolen piece goods, as well as lighter materials for ladies' dresses and overcoats. Up to the present time he has been doing an excellent business for British mills, and therefore he is well known to and has excellent connections with customers in Chile.

"Will you please pass this information to your readers, for one or more of whom a connection with Mr. Lewis may be quite interesting and profitable?"

ERNESTO RAVINET

The Wayne Works,
Richmond, Ind.

(We have made some suggestions on this; any reader interested may communicate with Mr. Ravinet or Mr. Lewis direct or through us.)

◆

From Jim Edwards

We have no desire to conflict with our editorial discussion departments, but feel that this page is the appropriate place for the following:

"In 'Shorts and Remnants', October issue, Alvin Margolius asks what is the percentage of foreign matter and dirt in average mill motes, fly and sweeps.

"Motes from Middling cotton, run once through a regular willowing machine, will lose 65 per cent of gross weight; this is card and picker motes. It is impossible to state accurately what fly will lose. This is largely dependent on what is taken out and classified as motes. The same is true of sweeps. With no control and system in the mill, sweeps will contain old tapes, straws, bobbins—anything from broom handles to top rolls.

"On the other hand, sweeps from a well-run mill will have been thoroughly picked of all foreign matter and will contain almost wholly soiled staples of workable length. Spinning and card room sweeps bring a premium over weaving sweeps since there is no staple in the latter."

J. C. EDWARDS

Frostproof, Fla.

MERRY CHRISTMAS!

Although this department must, for eleven months of the year, exhibit a passion for anonymity, we wish here to personalize matters sufficiently to express, to each and every client and friend of the magazine, a wish for a Very Merry Christmas season.

Every member of the "Cotton" organization joins us in this greeting, and in expressing the wish that during 1940 our relations with our friends may become strengthened and broadened, and that our field of usefulness and service to our industry, and to those who serve it, may continue to grow.

◆

Talc

"I would like the names and addresses of a number of concerns who handle talc for the finishing trade. If there are any concerns of this type in the state of Georgia, I should like very much to have them".

P. S. SMITH

Indianapolis Bleaching Co.,
Indianapolis, Ind.

(Chemical Products Co., Cartersville, Ga., and Georgia Kaolin Company, Dry Branch, Ga., are Georgia concerns in a position to supply talc for finishing. Other companies are American Cyanamid & Chemical Corp. and Arnold, Hoffman & Co., Inc.)

◆

By the River Dan

This sign, visible by day and night to travelers on the main Southern Railroad and U. S. Highway No. 29, identifies the great Riverside & Dan River Cotton Mills. It is mounted on one of the buildings of the Dan River Division, at Schoolfield, Va., which, with the Riverside Division in adjacent Danville, constitutes the organization.

The capitalization of the company is $15,000,000, with a 1938 value of annual output of approximately $16,500,000. The two divisions contain 452,816 spindles and 10,989 looms, and consumed approximately 87,800 bales of cotton in 1938. The corporation is thus a titan in the industry, as to size, and is recognized as a leader in sales, progress and efficiency.

Robert West, president and treasurer, and George W. Robertson, vice-president and general superintendent, head a list of executives of this organization who are readers of "Cotton", which includes, among others: D. K. Woodard, assistant to the president; H. M. Chase, director of research; J. A. Becher, assistant general superintendent; C. E. Clark, superintendent of spinning; and H. L. Pruitt and E. J. Wentz, superintendents of weaving.

Electrical Maintenance Finishing Materials and Cross-Indexes.

"I seem to remember an article on the maintenance of motors and other electrical equipment, but cannot find anything on it in my cross-indexes. Will you please let me know where you think I might locate it? Will you also advise if the series of articles by J. A. Clark on Finishing Materials is still available in book form, and if so what the price is? Please send my 1938 Cross-Index, for some reason I have never received one."

JOE C. COBB

Supt., Startex Mills,
Tucapau, S. C.

(Recent articles in COTTON on electrical and motor maintenance are: "The Proper Testing of the Mill's Electrical Equipment", February 1936 issue; "Good Motor Maintenance Methods", September 1935 issue; and "Maintenance or Repair", February 1936 issue. A limited number of copies of these articles are still available. The new edition of "Finishing Materials" is now available. (See page 86.)

◆

Spun Rayon Articles

"We will appreciate receiving the reprint of articles on spun rayon which you so kindly offered in your September issue of COTTON."

J. R. HARRINGTON

The Mathieson Alkali Works, Inc.,
Charlotte, N. C.

(Mr. Harrington evidently refers to a list of the articles on spun rayon published in COTTON during the past three years; we do not have reprints of the articles available, but will gladly furnish a record showing the titles of the articles and the issues in which they appeared.)

◆

Thanks from B. A.

"Muy senores nuestros: Agradecemos muy sinceramente las atenciones y la cooperacion prestada por Vds. a nuestro enviado Sr. Enrique Sorzana en su visita a Estados Unicos.

"Aprovechamos la oportunidad para saludar a Vds muy atentamente."

SORZANA & DOMENECH

Buenos Aires,
Argentina.

(The foregoing is a much appreciated letter of thanks for some services our organization was happy to render Senor Sorzana on his recent visit to the United States.)

◆

Information for Lawyer

"Thank you very much for your letter advising me in detail of sources of information concerning the production, distribution and consumption of cotton. The information given, in my opinion, will enable me to procure all the information which I require."

HERMAN TOCKER

Counselor at Law,
New York City.

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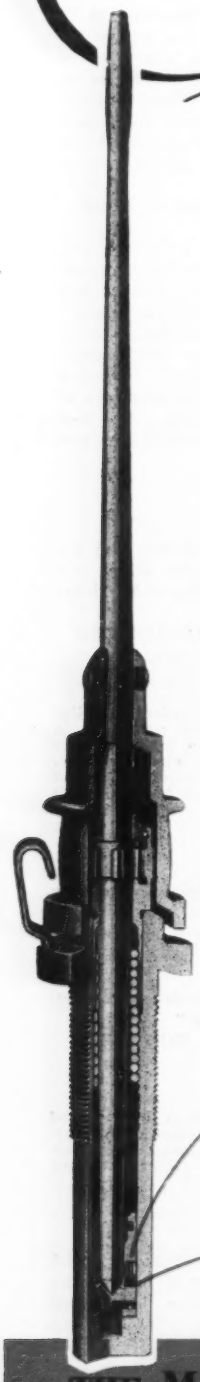

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COTTON
SERVING THE
Textile Industries

December 1939 Vol. 103 No. 12

THE MILL VILLAGE:

Should We Sell It? If So, to Whom?

By Arnold M. Oland

• A thoughtful and competent discussion, by an able observer, is given here on a timely subject. Both sides of the question are presented, with emphasis on the author's present convictions, with his reasons why.

We feel this article gives you the most comprehensive and up-to-date discussion on this subject of mill villages and their disposition that we have seen. Comments from readers will be especially welcomed. . .

THE MILL VILLAGE, as old as the southern textile industry itself and subject to much criticism, has again come up for discussion; this time in the light of an occasional press story announcing the sale of its village—in whole or in part—by a mill to its employees. Interest in the merits and demerits of such disposition of the village property is heightened by national wage legislation with its broad, sweeping and complex control of the wage system in industry.

The village, born of necessity and always a financial loss to mill management, has endured because its constructive values have always been greater than even the most doubtful disadvantages ever attributed to it.

But now that the industry has become established, and its people have become adjusted to this specific change in their manner of living; now that inadequate transportation and other factors that once made the village a necessity have, to a large extent and in many instances, been removed, this expensive and unique adjunct of textile manufacturing is demanding more serious attention.

"What shall we do with the mill village?" is a question. "Shall we sell it or keep it?" "Shall we sell it to a corporation or to individuals?" "Shall we sell it to our own people, or to whosoever will buy it?"

Few Sales So Far

Thus far, sales of village houses have been sporadic and occasional, affecting no particular area and, except for a number of mills identified with one common selling agency, reflecting no general policy nor any concerted action. Up to now, the practice is still the exception rather than the rule; but a trend is indicated, and it will be interesting to study some features of the general procedure which, broadly speaking, have been followed in these sales.

Those few mills, and they are included in two or three groups or areas, that have sold or are considering selling their villages as a whole, or in part, assign the following reasons for so doing. Their reasoning is both objective and subjective.

They say that social and economic conditions have developed along with government intervention to the extent that there are too many entangling situations. The relationship between the mill property and the village property, its upkeep and its productive income, or rather its losses, its depreciation, its relationship to wages, taxes, its complications under the National Labor Relations Board and the Fair Labor Standards Act, present difficulties and responsibilities far out of proportion to the village values which once existed and which now have been very much lessened.

Reasons for Selling

Another reason assigned is that, with the new competition for jobs, so much attention has been given to personnel problems that many of the evils, such as labor turnover, or migratory labor, experimental employment, resulting in misfits and undesirables, have to a large extent been removed or remedied. Improved village or living conditions, improved working conditions, improved industrial conditions have made labor and employment more stable and dependable.

A street scene in the modern mill village of Mathews Cotton Mill. Employee ownership of village would raise the question of general village maintenance and repair . . . . . .

In fact, continuous employment in the textile industry is more marked than in many of the major industries. The new social conditions, together with improved labor and improved general conditions, make the ownership of the village unnecessary, if not undesirable.

Wages have increased and many workers in the textile industry, not unlike many other people who have more money to spend, have become more possessive-minded and desire to own a home in which they can live and personalize and enjoy the comforts of declining years. These ideas, and others, are not new. They are always dormant, if not active, in the minds of every one, producing an emotionalism and a hope that often distorts judgment and financial ability.

Home owning, economic security, social recognition as property owners and the installment plan of purchase are all intriguing motives prompting both purchaser and seller.

They say selling to the employee a home carries with it dual benefits. It increases the responsibility of the worker in village morale, pride and upkeep, in home beautification, in self-respect and importance.

It thereby produces a more dependable worker, whose interest in the welfare and progress of the mill is accentuated because his life and living are intimately and financially involved therein. It further solves the problem of labor turn-over and improves industrial relations. It relieves the mill of a village responsibility; it places the relationship now on a straight real estate basis and stops losses and village worry insofar as many problems are concerned, such as those mentioned in a preceding paragraph, and particularly does it remove the stigma of paternalism that has always been such an inviting point of attack for social reformers.

Finally, it allows the mill manager to concentrate on the manufacturing of textiles without all of those village problems detracting or involving his time and business. While those who have sold, have sold to employees or potential employees, no mill manager looks with favor upon the prospect or likelihood of having his village owned or occupied by people unfriendly or unsympathetic with textile industrial philosophy and employment.

The Procedure Used

The method or plan of selling the homes to the employees has been in a large measure the same, and from a business point of view, entirely equitable and fair. In fact, the employee seemingly has been able to purchase his home in the village at a more reasonable price and upon more favorable terms than the average home-purchaser.

The villages sold or the homes sold in the village were surveyed for replacement costs. Then values were placed on the homes at from one-half to two-thirds of the replacement value, depending upon the location and condition of the property.

As a general rule, the down payment was at least 10 per cent cash on delivery or transfer, or scattered out through several weeks. The deferred payments were then handled as all other real estate deferred installment plans are handled—i.e., either through the mill, through some building and loan company or otherwise.

The deferred payments, including insurance and interest, generally average about $3.00 to $4.00 weekly per thousand dollars.

It is not necessary to say that all legal and documentary papers necessary to guarantee fair property equities between seller and buyer were properly executed. In the homes sold, the employees were eager buyers. No sales force or compulsion on the part of the owners was permitted. The employees were free agents in all respects.

Those who have sold their villages or homes believe that they are following a safe policy and say that up to the present time no conditions have arisen to make them regret their sales. They are frank to state, however, that more time is needed in order to test the wisdom of the policy. Looking at the subject broadly, some general observations may be pertinent:

Reasons for Not Selling

The mill village is so interwoven with the manufacturing plant itself that disposition of it is not easy. It is a part, physically, of the mill property, with a common supply for lighting, water and sewage disposal. Its streets, its policing, its schools and its churches—often its hospital and medical clinics—are part and parcel of the complex mechanism of expense and supervision of the mill system.

To separate all of these activities into a separate village entity, owned and controlled by a group of people who have never operated a town or village—and make the separation and distribution just and fair to all concerned, so that the village problem will be solved, and economic and social responsibility for proper operation secured—is

quite an undertaking.

I know that our psychologists and social-minded friends point to many splendid reactions to the principles of home-owning. Better citizenship, stability of labor, pride of possession, etc., etc., theoretically present themselves. But the mill village presents a much more difficult proposition than simple home-owning. If a mill had no village and its people—either a few or all—desired to purchase homes, the problem would be much simpler; no more difficult, in fact, than is the present situation of employees in the mill (and there are thousands) who do not reside in the mill village. But purchasing a home in a mill village is a highly complicated matter, for both the purchaser and the seller.

Uncertainty of mill activity, uncertainty of future social and industrial conditions, uncertainty of ultimate ownership—all of these and many more uncertainties should make the owner and the purchaser think seriously. This is not simply a question of home ownership; it is a problem of village disposition.

Studies of home ownership of various types of workers will, I believe, show that home owners in the textile industry will compare favorably with any other group. There are fewer home owners than there are non-home owners in the average city. Certainly it is, in most instances, cheaper to rent than to own. Again, the uncertainty of permanent location, the depreciation of property, taxes and upkeep and many other factors make home-owning for nearly all undesirable. Most people, except owners of well-established businesses, are transient in their working and in their domestic abodes. The U. S. Government in its housing program has had to reclaim thousands of homes because the plans and economic status of the people who ventured have been changed.

There have been homes and even villages sold that, superficially, present an attractive picture, but we are not willing to approve the idea until sufficient time has passed for defects and defaults, or wisdom, to appear. Most people are emotional and follow fads. Too many people tried to own homes, under the Government plan, who were unable to own them. Too many people grew emotional and felt they were getting something for nothing, and found out later this cannot be done. Too many people want other things more than they want homes.

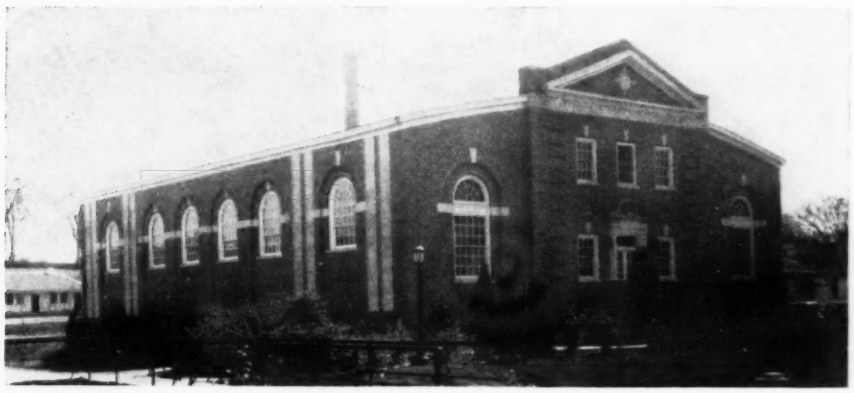
Cars, radios, clothes, picture shows, sports, furniture, cosmetics, food and hundreds of other desires made active by education, progress, association, and publicity, all call loudly for a part in the average family budget. The average family, regardless of vocation, is not willing to forego these demands in order to own a home. Under pressure, or the impulse of group action, they may try it; some will be willing to continue the necessary sacrifice, but many will soon grow cold and lapse back into the rental group.

The seller and the buyer are so closely related in the sale of the mill village that there can arise many causes for dissatisfaction, real and imagined. The worker can get tired of his job, or get a better one somewhere else, or the employer can and may find it necessary to discharge him. Homes reclaimed and homes resold invite many opportunities for friction.

A Suggested Plan

Owning the mill village may present many objectionable and perplexing problems, but selling it will present many more that cannot be handled easily or satisfactorily.

There seems to me to be a much simpler and saner approach to this question than selling the village, and that is, putting the village into a separate corporation and having its operations entirely divorced from the manufacturing or industrial processes. The village under proper study can be worked out under a proper cost system. Each home and each village activity can be allocated—its expense and the return it should make. The industrial corporation could run on its own power and responsibility and the village corporation could run on its own power and responsibility. Rents and expenses should be assessed on nothing less than a cost basis and wages should be paid just as though there were no village. Village maintenance and operation should be at least on a cost basis. Everyone would then know exactly what he is drawing in his pay envelope and what he is paying for his rent. There would not be any "bogey man" about extra envelope pay or village differential. The



Sears Memorial Hall at Langdale Mill, containing a fine gymnasium for mill employees. Such structures have been made available under management-ownership of village property . . . . . .

workers could live in the village, if they desired, or in any other house rented by them.

In some discussions I have seen and heard on this subject, there seems to be some confusion between home-owning as a principle and home-owning in a mill village. There is a difference. Home-owning is one thing; selling the houses in a mill village to employees is another problem much more involved.

It is unquestionably true that in these highly competitive times the loss incurred by the mill village affects seriously the financial status of the mill; it is true that rents and returns on village investments have never been adequate. In past days, perhaps speculation in cotton, steadier and more profitable markets, permitted these losses to be absorbed, but today, with so much Government control, and so much competition, profits are extremely uncertain, and all losses and expenses must be reduced to a minimum.

In taking a position of doubt, we do not wish to cast any reflection on any mill or person who has bought or sold a home in a mill village. I personally know the people who have made these sales, and insofar as financing and values are concerned, insofar as faith on their part in the plan goes, I have the greatest respect and admiration.

The mill village, with all that it signifies, is too integral a part of our industrial life to be cast off hurriedly. It is the culmination of years of experience. People change habits slowly. It may be that the mill village has spent all of its constructive force and must be changed. If so, I am of the opinion that this change will have to be gradual, and may possibly be solved by physical disintegration of houses, because there will be no need to rebuild or enlarge due to the changes in the living conditions of the workers.

Already mill management is highly involved with various Government agencies, with new problems of industrial relations, with new economic problems, both national and international. For a new problem of real estate and long-term payments and industrial uncertainty to be injected into the employer-employee relationship is rather risky, to put it mildly.

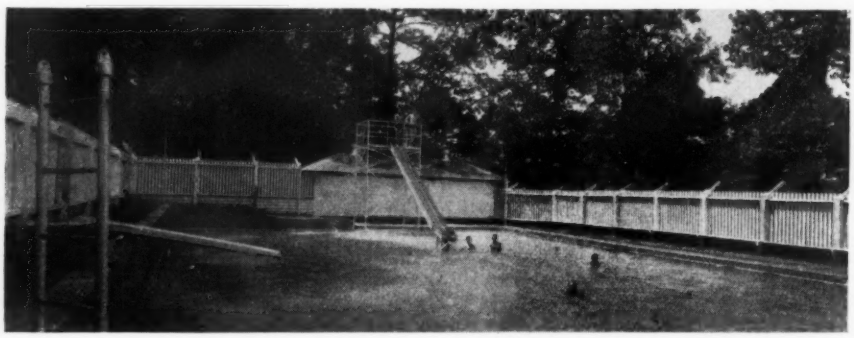
This is a rapidly changing world. The next generation of workers may think and act differently. To me, the future indicates some drastic changes in the textile industry. Employer and employee must remain as free from unnecessary involvements with each other as possible. I am strongly of the opinion that, as a general policy, there are more dangerous entanglements in selling than there are in employer ownership.

I am rather decided in my feeling that some sane rental basis, value received for value given, is the only safe general policy to pursue. This does not mean there may be no exceptions, or that in any village there may not be a few homes that may be sold to employees, but these statements apply as a general policy which will produce fewer complications than a general sale.

Debts and obligations carry with them restrictions. They create unrest and dissatisfaction. In this particular situation, the worker is beholden to the mill for his job and must pay the mill his installments or lose his home. His insurance, taxes, interest and installment, plus his upkeep, will make his cost of living much more than his present rent, and there is the chance that with changing conditions he may find himself with the obligations of payments on a home and no job. This would be unfortunate.

Regardless of the many theoretical advantages of home-owning, there is greater freedom of action, greater freedom of job opportunity, greater independence, for the average textile worker under the management-ownership plan than there is under the employee-ownership plan, as this applies to homes in mill villages. I repeat, in order to emphasize it, that we are not dealing with a principle in the abstract, nor are we theorizing as to what would be the best course if some stroke should wipe out all of our villages. Nor are we thinking in terms of a specific individual. We are looking at a problem involving not only deep-rooted customs more than three generations old, but with the very real existence of a village connected with the vast majority of southern mills.

There is no doubt that some new policy is needed, but at the present moment, I know of no better or less complicated policy than the one suggested in this article: Put the village into a separate corporation, charge fair rentals based on fair valuation of the property, and put all of the wages into the pay envelope.



There is a swimming pool like this in each of the five villages of West Point Mfg. Company. Such facilities as this, and auditoriums and community houses, etc., might present complications under general ownership of mill village homes by employees . . . . . .

The Role of Fencing in the Protection of Mill Property

By W. H. Bleecker *

AMONG the significant changes that have taken place in the textile industry during the past decade, protective measures are among those of major importance. These correctives are of four classes:

Protection of raw staple through better handling and the installation of new types of machines. Protection of finished products through the adoption of improved methods. Protection of employees through the operation of effectual safety programs. Protection of property through both exterior and interior safeguards. In each class little leaks and big losses have been stopped.

Since industrial fencing is a proven solution to problems involving the protection of mill properties, the safeguarding of materials and the security of the business against possible liability suits, operating executives have demonstrated keen interest in facts about chain link fence materials, specifications and erection methods.

*Page Fence Association.

An Effective Barrier Against Intruders

Chain link industrial fencing may run from 3 feet to 18 feet in height. It may or may not be topped with barbed wire. It may be one of several different fence metals chosen for most effective resistance to destructive local atmospheric conditions. It may be of wire gauged from the lightest up to almost a quarter-inch in thickness. Or it may be a combination of all these various specifications, according to the protective assignments at various points in the boundary line.

The average or "typical" textile mill protective fence is metal chain link, 7 or 8 feet in height, topped by three strands of barbed wire held by extension arms attached to metal fence posts. These arms may be either vertical or slanted inwardly or outwardly to hold the barbed wire at an angle.

The chain links are two-inch mesh, of 11 gauge, 9 gauge or 6 gauge wire. Posts are of metal, in a variety of shapes, including U-bar, H-beam or tubular, set at 10-foot intervals to a depth of 3 feet in bell-shaped concrete footings. The concrete "ball" resists lift and side pressure. It is usually domed slightly above the ground to shed water away from the post metal. Such setting is indispensable to fence stability and should be handled by expert fence-erection crews, as should all details of fence erection.

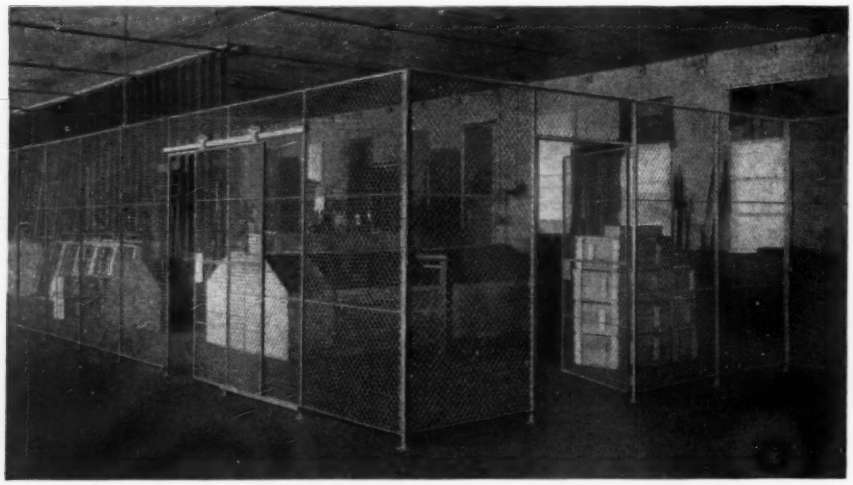
Gates are of four types—walk gates; swinging gates; double-swinging railroad gates; sliding gates—and may be situated anywhere in the fence line. Great care must be taken, however, to anchor and brace all gate and end posts firmly as the fence-fabric tension begins and ends at these points.

Proper fencing provides protection to property, prevents sabotage, and contributes to plant appearance . . . . . .

Fence manufacturers have demonstrated great ingenuity in producing gates to meet special or difficult conditions; such as gates to swing up hill, and gates for extra wide openings.

Various Fencing Metals

Science has made many forward strides in providing longer life for property fencing metals. Also, it has discovered that some metals have much longer life than others under the various destructive atmospheric conditions peculiar to different localities. Such conditions include salt spray, alkali, acid or other chemical fumes—often carried long distances in the air from neighboring oceans, mineral soils, chemical plants or factories.



Photographs, courtesy Page Fence Association

"Inside fencing" constitutes convenient, adjustable, neat and protective partitioning for storage rooms, supply departments, etc., etc. . . .

Any consideration of chain link metal fencing for factories should include a study of local atmospheric peculiarities and the selection of the metal most resistant to any destructive condition discovered. In many fencing installations such a precautionary study of air conditions results in adding many years to the effective life and appearance of the chain link fence selected.

Copper bearing steel fencing with sufficient weight of zinc galvanizing is the most economical chain link fencing for all localities *favorable to its use.*

While various technical methods are used by different manufacturers in the application of the protective zinc coating—including hot-dip and electro galvanizing—the most important considerations in purchasing concern the thickness, evenness and weight of zinc applied and bonded to the basic metal.

Former standards of zinc application required but 7/10-ounce to one ounce of zinc coating per square foot of wire. Leading fence manufacturers today, however, have set a minimum of 1.2 ounces of zinc coating per square foot as the least requirement for effective weathering protection, some recommending up to 2.4 ounces—double the minimum.

Aluminum woven wire fencing combines to a high degree corrosion resistance, strength, low maintenance cost and high decorative value. Its light weight also results in a considerable reduction of weight on the supporting structure. Aluminum wire, being composed of corrosion-resisting material throughout the entire thickness, makes it unnecessary to provide any exterior coat such as paint or galvanizing.

Stainless steel is another fence metal that is receiving careful study. It provides a fence of beauty, immune to rust without a protective coating, with tensile strength four times that of low carbon steel. It is possible to use much lighter gauge stainless steel wire to secure strength equal to that of much heavier fencing.

Galvanized ingot iron, costing a trifle more than ordinary steel fabric, provides another type of time-tested and corrosion-resisting fence suitable for many installations.

Recommendations as to the selection of one of these fencing metals for any particular installation is a matter for a fencing expert to determine after examining all conditions pertaining to that installation.

Styles, heights, trimmings, gates, etc. are all matters of selection to meet requirements and individual tastes.

Fence erection is then the final matter for experienced fence-erection crews, determining to a great degree the effective life of the fence.

With these conditions carefully met, the resultant "tailor-made" factory fence is one which should afford strong, silent protection to factory and grounds for many years.

Fencing Inside as Well as Outside

Protection to certain sections of building interiors is often as important as protection on the outside. Chain link metal fencing is especially effective as protective partitioning for stock-rooms, store-rooms, tool-rooms and other special departments. Standard panel units make for quick and flexible installation of such partitioning. Panel units are usually made 4 feet by 8 feet, entirely uniform and interchangeable, woven of No. 10 galvanized wire in meshes 1-½-inch square. Each panel is provided with legs which furnish a 2-inch floor clearance. When higher enclosures are required panels without legs may be placed in a horizontal position above the line of 8 foot sections. Where ceiling clearance is not sufficient to permit use of the standard 4 foot wide panels, panels either 1 foot, 2 feet, or 3 feet wide, without legs, may be obtained.

Such inside partitioning affords real protection, is fireproof, allows complete visibility and ventilation, and has 100 per cent salvage value, as panel partitions may be removed to other locations as often as necessary. Either sliding or swinging gates can be furnished, equipped for padlock or with tumbler lock arrangement as specified.

SURFACE ACTIVE AGENTS

Their Applications in the Wet-Processing of Textiles

By Andrew J. Kelly
Burkart-Schier Chemical Co.

Part II

THE TERM "synthetic surface active agents", as applied here for want of a better designation, refers to those products which are not simple alkali salts or fatty acids or sulfated fatty acids. Or, more broadly, to those not primarily based on naturally occurring glycerides, fats, or fatty acids. This definition just about includes all of the wetting and dyeing aids except soap and sulfonated oils or their compounds. Among the types finding general use, mostly in the form of their sodium salts, are: alkyl naphthalene sulfonic acids, sulfated fatty alcohols, sulfated esters of polybasic acids, fatty acid condensation products, sulfated aromatic hydrocarbons, sulfated aliphatic hydrocarbons, quarternary ammonium, sulfonium and phosphonium groups, mineral oil sulfonates, and many combinations and variations. Trade names for most of these can be found in the "Textile Chemical Specialties" section of the 1938 AATCC Yearbook, or in the previously mentioned listing in the January 1939 issue of the *Journal of Industrial and Engineering Chemistry*.

As a rule, the synthetics have two basic advantages over other types of products: they are immune, or practically so, to hard water conditions; and they are absolutely neutral in solution. To this latter attribute is allied their outstanding resistance to acid baths. These agents do not hydrolyze in water to form alkaline solutions as do the soaps, they have in dilute solutions a pH close to 7.0 versus 9.5 to 10.0 for neutral soap. They appear to ionize rather than hydrolyze when dissolved in water; often their solutions are electrolytes as are the solutions of neutral inorganic salts such as sodium chloride and glauber's salt. Like these common salts their concentrated solutions are corrosive to metals. In some cases this was discovered only by unhappy experience—manufacturers shipping in ordinary steel drums found that the containers were being corroded and the contents contaminated. This is why today we usually find that the liquid (aqueous) forms of the new compounds are being packaged in paraffined wood barrels or in steel drums with special protective linings.

The present types of synthetic wet processing aids were evolved after ceaseless effort in innumerable laboratories over long periods of time. A steady and unrelenting search was carried forward to find a soap or soap-like compound which would not form the diagreeable, troublesome, and costly insoluble soap spots and scums. The fat and oil soap stocks had their molecules twisted and turned in every conceivable fashion, for it was early recognized that the fatty acid combination with alkalis would have to be rebuilt to obtain a hardness-resisting end product.

Such intensive cultivation eventually yielded a good harvest of results, and not so many years ago the first fruit appeared on the market, to be followed in rapid and rather perplexing fashion by a bumper crop from numerous sources. Taken as a group, these newcomers had much to recommend them. They possessed admirable resistance to lime and magnesium salts, they were as effective in strongly acid as in neutral baths, they were potent surface active agents, and they sudsed beautifully. But the strong light of mill and field practice exposed some basic weaknesses, one in particular being that by and large they were delinquent in detergent or cleansing activity.

The discovery of the lack of detergency in some of these powerful new wetting agents had some interesting implications. Most chemists and colorists are familiar with the one-time current belief that the cleansing action of soap was due to the peculiarly active saponifying effect of its alkali of hydrolysis. This is, the alkali released in solution was supposed to saponify (convert into soap) the fats and fatty substances present

• IN the first installment of this serial discussion of Surface Active Agents, which appeared on page 51 of the November issue, Mr. Kelly reviewed the general history of wetting agents, and the close relationship of penetration to detergency in textile wet-processing. He described the accepted tests for valuation of wetting agents, and began a discussion of the several different general classes of products that are used as surface active agents in textile work. He covered first the soaps, the sulfonated (sulfated) oils, and the soluble solvent compounds.

In the present installment, he continues this discussion by taking up the "synthetic surface active agents", and follows this general review with a discussion of the requirements of a wet processing aid, the textile applications, the need for simpler tests for detergency, etc.

The third installment, next month, will conclude the article; it will discuss wet-processing for Sanforizing, the newer cation active finishing agents, etc.

in nearly every kind of soil. This theory began to fade and one favoring surface tension depression as the basis of detergency gained favor. Naturally, these very potent surface active agents were expected to display equally potent scouring value. They wet out rapidly and well, they gave copious suds. But—they didn't cleanse. That is to say, not as did soap; some cleansing always resulted but not nearly enough to justify the surface action theory.

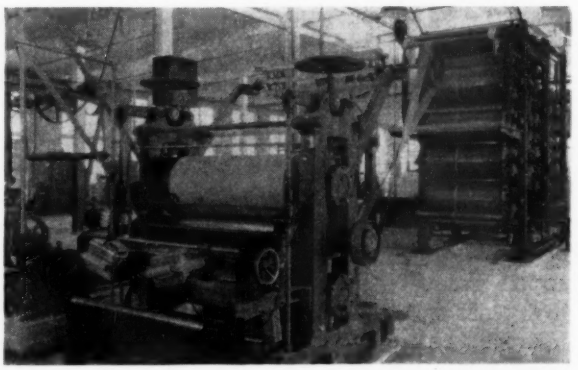
So another explanation went by the board, and today there is no generally accepted view as to the basic element of detergency. Most workers in the field incline to the belief that there just isn't any single basic element; that the true explanation lies in a combination of the factors of saponification, surface or interfacial tension depression, emulsification, and probably others.

In evaluating a wet processing aid it seems of prime importance to decide first what is most desired from it: penetration; scouring; dye-leveling; softening; etc. Unfortunately, however, it isn't always practical to do this in practical applications. Even when penetration is apparently the No. 1 requirement, it may be that an agent with slightly inferior wetting but possessed of other quite desirable properties (not always easily measured) may do the job better and so be preferred. Viewed from the standpoint of wetting action alone, there is no doubting that the synthetic products stand pre-eminent. Some will give an instantaneous sink in dilutions as extreme as 1/20 of 1 per cent (0.05 per cent) dry basis. There is no denying that this is amazing, even in these days of amazing happenings. When wetting alone is wanted, and wanted quickly, hardly any other products can hope to compete. Even when the price per pound appears to be high, the very small quantities necessary still make for good economy. And since they give neutral solutions, the effect on colored goods in the baths is generally negligible; even colors not usually considered fast may be unaffected. For wetting operations, either in neutral or if desired in acid baths, the synthetics are indubitably the leaders.

For many dyers and mill chemists it so happens that the operations where wetting alone is required are comparatively rare. Often the primary stress is on cleansing. In boiling-off hosiery, for instance, or in scouring rayon or cotton goods, while wetting must of necessity be obtained, the principal objective is a thoroughly cleaned fiber or fabric to serve as a bottom for subsequent bleaching or dyeing operations. Dirt must be removed, along with grease and oil and other stains which could cause trouble later. A powerful detergent is necessary, and a great many mill men hold that here soap is still supreme. Possessing the "adequate" wetting ability already mentioned, they maintain that its aqueous solutions have the necessary emulsifying and scouring properties in a degree possessed by no other agent of like cost. Whether alone or in combination with alkalis, soap will probably remove a greater variety of dirt and soil than anything else available. Its action is mild, even though there are some cases where the alkalinity of its solutions is an undesirable factor. It may well be that synthetic products are on the way which will equal it for all-around detergency and economy, but there is no questioning the fact that soap is still one of the basic supplies in any dyehouse or bleachery.

For some boil-off and degumming operations the soluble oils actively compete, likewise either alone or in combination with alkaline aids. For boiling-off silk hosiery in particular, many prefer the sulfonated oil and buffered alkali compounds known as degumming oils; they are economical, effective in one- or two-bath methods, and quite convenient to handle. The moderate sudsing of these oils is a further desirable feature to dyers who find that voluminous suds make "adds" difficult by carrying away some of the dyestuff before it has an opportunity to be adsorbed by the textile fibers.

For this particular operation of degumming silk no neutral-solution agent alone has been found to be economically feasible. Some available alkalinity is essential for effective removal of the sericine gum; furthermore, the fatty base of the soaps and soluble oils served to lubricate the fibers and lessen tendencies toward harshness and chafing. It has been demonstrated that silk can be stripped of its gum in an acid bath. In such a process of course no soap or soluble oil could find a place, but the commercial applications of this acid degumming are rare if occurring at all. It has not been encountered in the South, at least.



Water mangle and drying cylinders in a southern bleachery . .

Courtesy, Textile Finishing Machinery Co.

By and large, then, it may be stated that for general mill-run wet processing a combination of wetting and detergency is required. As has been mentioned, it is axiomatic that textiles to be wet-processed must be wet, but simple wetting may on different classes of work vary from an exceedingly difficult procedure to one simple and easy enough so as to be ignored in planning dye-house routine. It is impossible to say offhand what types of fibers or which fabric constructions will be easy or difficult to penetrate; so much depends on the tightness of

twist, fineness of fabric, etc.; but every colorist and chemist knows that very great variations exist.

Since it is so often required that wetting and scouring occur simultaneously, it has become a rather general custom to add one of the synthetic surface active agents to the bath, to aid and expedite the action of the soaps or soluble oils already present. Mostly the results obtained have justified this practice. Improved wetting action is obtained, along with a lessened tendency for any insoluble soaps and scums to precipitate. These latter, though still present because of the reaction of soap with any hardness minerals present, are more finely dispersed and so more easily rinsed away. Clearer, whiter goods, better conditioned for subsequent operations, are secured. This use of the synthetics as adjuncts to other textile aids accounts for a good percentage of the total used.

In relation to this procedure of using soaps in conjunction with the synthetic hardness-resisting agents an interesting experiment may be cited, whereby it is shown that 'though these latter do definitely aid in the dispersion of insoluble soaps and scums, they do not necessarily prevent their being formed. To water of average hardness, say 5 or 6 grains, is added just sufficient of one of the newer surface active products to yield a good suds. If then a dilute soap solution (which may be made up in soft water, or a standard soap test solution may be used) is added slowly, drop by drop with frequent agitation, it will be found that at first there is an actual lessening of the suds. In fact, they may disappear entirely, until there is entered sufficient of the soap to precipitate out the metallic salts and thus in effect soften the water.

Here is an instance where the addition of soap, itself an able sudser, acts to dissipate suds already formed. This positively does not mean that the agents involved are incompatible or do not work well together; it is only an indication that the synthetics do not actually soften the water or demobilize the hardness elements. Nor has it been claimed for them that they do. If, on the other hand, in some of the same water as used above, a weak suds is first built up with soap, and the synthetic compound then added slowly with stirring, a steady increase in volume of suds occurs.

The effect mentioned in the preceding paragraph is in contrast with that obtained with sodium metaphosphate. This now familiar textile auxiliary has the faculty of tying up or sequestering the hardness minerals so that to all intents and purposes they are removed from the bath. Some mention of it is essential in any discussion of surface active agents because of its assistance in maintaining for soap a strong position in the field. One of the sharpest spurs in the search for soap substitutes has always been its susceptibility to calcium and magnesium salts, the principal hardness elements. With metaphosphate in the process water, not only are calcium and magnesium already present rendered *hors de combat*, but they may be actually added (as usually is the case with soiled goods) without precipitation or scumming. If a few drops of dilute soap solution is added to the 5-grain water used before, on shaking clouding and precipitation of metallic soaps—with no sudsing—results. If then a little metaphosphate is added slowly, the solution soon clears, and abundant suds appear. The old and the new, soap and metaphosphate, work shoulder to shoulder in enlarging the scope of the former and in finding a place for the latter.

Since noting that many of the newer wet processing aids were deficient on the score of detergent or cleansing action, the manufacturers of these compounds have been working toward remedying the situation. They have accepted the challenge, and today are marketing not just wetting or surface active agents, but "synthetic detergents", a term this paper has avoided up to now. Of course, a mere re-labeling would not effect any improvement and while it might accelerate initial sales would not make for repeat orders or good will. But more than re-labeling has taken place, and products are being offered which merit the descriptive title.

Taking more or less for granted the cogent surface active properties of the synthetics, the consumers asked for detergency as well and are getting it. The result has been achieved in a number of ways: by using raw materials of different molecular chain length; but adding the sulfonic acid group at varying positions on the chain; by combining and by condensing raw materials, by evolving completely new compounds; sometimes by physical mixtures of finished products. And taking a page from the soap makers' book, these agents are further being offered in one-package combinations with modified or buffered alkalis.

The possible bases for the synthetic detergents seem limitless; almost any aliphatic (chain) or cyclic (ring) compound and all their infinite variations may serve as a starting point for a new wet processing aid. But in nearly every instance the finished products have at least two things in common: they are all sulfates or sulfonates, and they are marketed in the form of the sodium salt. Exceptions occur, but are rare. When sulfonated castor oil was introduced, they really started something. For some of the new offerings broad claims for detergency are being made which if substantiated will give the synthetics a still stronger position in the field of dyehouse assistants.

In passing might be mentioned the need for simple but effective tests for detergency—something to parallel the AATCC test for wetting ability. Dr. Draves and his associate in perfecting a speedy and practicable method of evaluating wetting agents made a notable contribution to both their science and their application; a test for detergency as equally suited for general mill practice would be almost as great a boon.

There are, of course, some methods in use. One in particular may be briefly noted. Clean white swatches are given a standard soil (with carbon and grease or oil,

(Continued on page 108.)

The Duerst Method of Figuring

Progressive Yarn Twist

THE Duerst method of calculating progressive twists for spinning is presented here. Progressive twists have been in use in many European mills for years, and mill men in this country have used them, usually arriving at the proper multiple by the hit or miss method, which, though worthwhile once the correct multiple is determined, has proven costly. Mill men know that to insert more twist than necessary is expensive, and to insert fewer turns than necessary is disastrous. By following this article closely it may be possible to make savings in your plant, but the method is not given as a procedure to be instituted immediately. It should be studied carefully to fit in with local conditions and certain departures may have to be made. Questions pertaining to this article will be answered by Mr. Duerst.

THE PROBLEM of "twists per inch" is possibly as old as the first spinning jenny. Ever since the establishment of the English yarn numbering system, there has been a rule in use that the twists per inch of a yarn count be proportionate to the square roots of the count. In other words, we select a constant of say 4.75 for warp twist, and to get the turns per inch for all counts of the same quality and made with the same cotton, we multiply the square root of the yarn count by 4.75.

According to John Duerst* of The Clark Thread Company of Georgia, Clarksdale, Ga., this rule works well for two or more counts within short range, but does not give satisfactory results if applied to counts of wider range. This is especially true for roving hank counts. (See article in January 1939 COTTON entitled "The Duerst Formula".)

This fact has long been recognized in practice. Leading text books of 40 years ago, while extolling the rule in theory, had tables made with progressive twist multiples. These progressive twist multiples were arrived at through practical experiments, but no formula was given to furnish a plausible reason to uphold the theory of progressive twist multiples for spinning or roving counts.

A progressive twist multiple is the product of a basic spinning multiple and a factor whose gradual increase towards finer counts has heretofore been determined by practical experimentation, or in some cases by guess work in the right direction.

While many mills have used progressive twist multiples for roving counts and yarn counts, no formula has been available to designate the relationship wherein the progressive twist multiple may be applied in actual mill practice, except, as stated, by actual tests of the trial and error method.

Mr. Duerst has developed a formula, which he advocates being used instead of the present formula

Table of Calculated Values of Formula $\frac{\sqrt{1+8\times Count}-1}{2}$

For Yarn Counts 1.00 to 100s

Counts	Calc. Value	Counts	Calc. Value	Counts	Calc. Value	Counts	Calc. Value
1	1.00	26	6.73	51	9.61	76	11.84
2	1.56	27	6.87	52	9.71	77	11.92
3	2.00	28	7.00	53	9.81	78	12.00
4	2.37	29	7.13	54	9.90	79	12.08
5	2.70	30	7.26	55	10.00	80	12.16
6	3.00	31	7.38	56	10.09	81	12.24
7	3.27	32	7.51	57	10.19	82	12.32
8	3.53	33	7.63	58	10.28	83	12.39
9	3.77	34	7.76	59	10.37	84	12.47
10	4.00	35	7.88	60	10.46	85	12.55
11	4.22	36	8.00	61	10.56	86	12.62
12	4.42	37	8.12	62	10.65	87	12.70
13	4.62	38	8.23	63	10.74	88	12.78
14	4.81	39	8.35	64	10.82	89	12.85
15	5.00	40	8.46	65	10.91	90	12.93
16	5.18	41	8.57	66	11.00	91	13.00
17	5.35	42	8.68	67	11.09	92	13.07
18	5.52	43	8.79	68	11.17	93	13.15
19	5.68	44	8.89	69	11.26	94	13.22
20	5.85	45	9.00	70	11.34	95	13.29
21	6.00	46	9.10	71	11.43	96	13.37
22	6.15	47	9.21	72	11.51	97	13.44
23	6.30	48	9.31	73	11.59	98	13.51
24	6.44	49	9.41	74	11.68	99	13.58
25	6.58	50	9.51	75	11.76	100	13.65

To figure out this Formula $\frac{\sqrt{1+8Cts}-1}{2}$, first multiply the counts with 8, next add one to the product of 8 x Cts then extract the square root from the sum obtained. From the result after extracting the square root subtract one and finally divide the difference by two.

Example when the Counts is 55s:

$8 \times 55 = 440$

$440 + 1 = 441$

$\sqrt{441} = 21$

$21 - 1 = 20$

$20 \div 2 = 10 = \frac{\sqrt{1+8\times55}-1}{2}$

Chart A

*John Duerst is research engineer for The Clark Thread Company of Georgia, Clarkdale, Ga.

of $\sqrt{\text{count}} \times$ twist multiple. It is an expression that will take care of conditions as experienced through actual mill practice and be more within the scope of yarn structure.

Also, before going further with the explanation of the Duerst formula for progressive twist, it might be stated that it has been used in actual mill practice for roving twists in a large southern mill and has been found satisfactory in every respect.

The Duerst Formula Working

The Duerst formula for progressive twist is given as

$$\frac{\sqrt{1 + 8 \times \text{counts}} - 1}{2}$$

But for those of us not so mathematically inclined, Mr. Duerst has simplified the use of this formula by preparing tables of all counts from 1s to 100s, with the corresponding twist multiple to be used in arriving at the final progressive twist multiple. See Chart A.

To use the new formula, we must by practical research in our own plants determine which of the *present twists* are the most satisfactory, or which is the correct one to be taken as a base. Suppose, then, we determine that the twist of 55s yarn would be chosen as what we consider our best running and most satisfactory yarn, and we would like to make our other counts just as good and similar in every respect, with the same grade and staple of cotton. Again suppose that we are making this perfect yarn of 55s with a twist multiple of 3.4.

To get the Duerst multiple we take the twist per inch in our present 55s, which is 25.2 turns (arrived at by $\sqrt{55s} \times 3.4$), and looking opposite the 55s count in Chart A, we find the formula comes out to be 10.00. Dividing 10 into 25.2 we get the Duerst multiple of 2.52. This multiple of 2.52, when multiplied by the figure opposite the counts as shown in Chart A, will give the progressive twists per inch for all counts (Based on 55s in this example).

Of course, if we wish then to speak in terms of twist multiples, instead of turns per inch, we get the progressive twist *multiples* simply by dividing the new twist per inch

Cts.	$\sqrt{\text{Cts.}}$ x Present Mult.	= Present Twist	Chart A, or $\frac{\sqrt{1+8\text{ Cts.}}-1}{2}$	New Basic "D" Twist Multiple	New Twist	$\sqrt{\text{Cts.}}$	Progressing Multiple
1	1.00 x 4.75	= 4.75	1.00	x 3.52	= 3.52 ÷	1.00	= 3.52
5	2.23 x 4.75	= 10.6	2.70	x 3.52	= 9.5 ÷	2.23	= 4.26
10	3.16 x 4.75	= 15.0	4.00	x 3.52	= 14.1 ÷	3.16	= 4.45
15	3.87 x 4.75	= 18.4	5.00	x 3.52	= 17.6 ÷	3.87	= 4.54
20	4.47 x 4.75	= 21.2	5.85	x 3.52	= 20.6 ÷	4.47	= 4.61
25	5.00 x 4.75	= 23.8	6.58	x 3.52	= 23.2 ÷	5.00	= 4.64
30	5.48 x 4.75	= 26.0	7.26	x 3.52	= 25.6 ÷	5.48	= 4.66
55	7.41 x 4.75	= 35.2	10.00	x 3.52	= 35.2 ÷	7.41	= 4.75
100	10.0 x 4.75	= 47.5	13.65	x 3.52	= 48.0 ÷	10.0	= 4.8

Chart B

This chart shows in detail how the progressive twist multiple is calculated by use of the present twist multiple and the Duerst formula for progressive twists . .

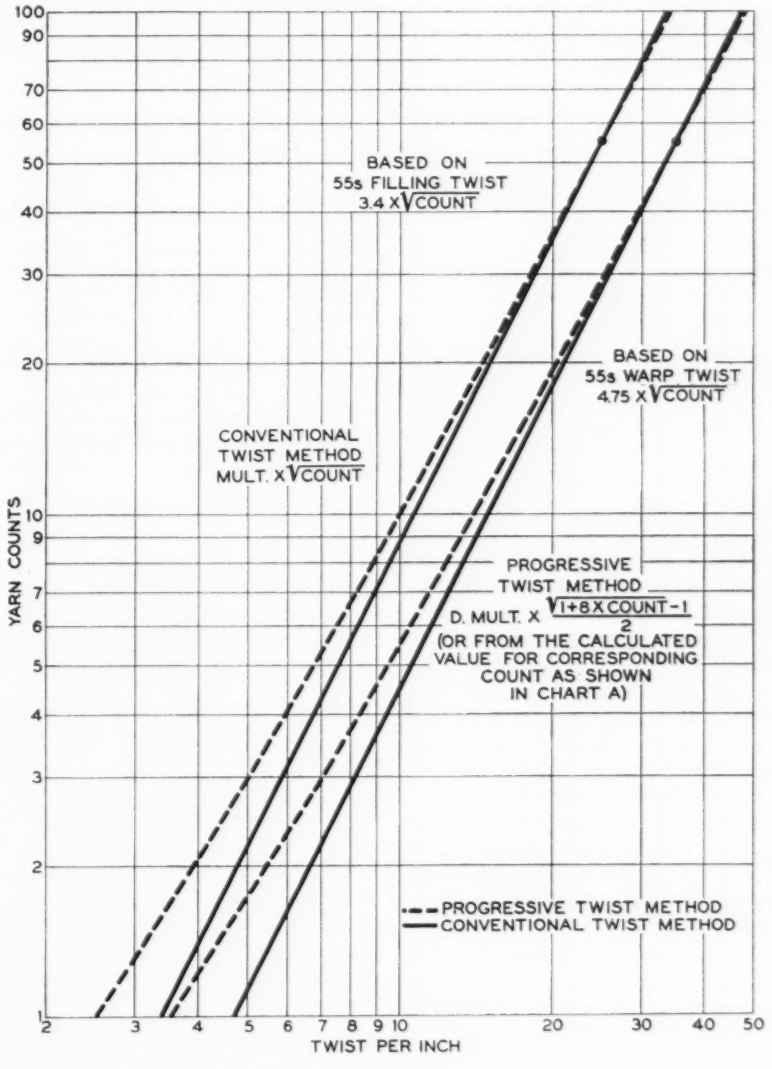

YARN COUNTS
TWIST PER INCH
BASED ON 55s FILLING TWIST 3.4 x √COUNT
BASED ON 55s WARP TWIST 4.75 x √COUNT
CONVENTIONAL TWIST METHOD MULT. x √COUNT
PROGRESSIVE TWIST METHOD
D. MULT. x (√1+8XCOUNT-1)/2
(OR FROM THE CALCULATED VALUE FOR CORRESPONDING COUNT AS SHOWN IN CHART A)
PROGRESSIVE TWIST METHOD
CONVENTIONAL TWIST METHOD

Chart C

This chart is based on 55s for both warp and filling, made for both progressive twists and for the accepted method of figuring twists.

The graph on the left is for the optimum twist for 55s with a twist multiple of 3.4 and the graph on the right is for 55s with a multiple of 4.75. (In other words, the mill discovered that for 55s in each instance, the yarns were the best they made.)

In each case the Duerst progressive twist multiple method is indicated by dotted lines and the accepted or present method by solid lines.

From this it may be seen that whatever number a mill might use as its base (because its present twist in that number is best) that the Duerst method would produce less twist for all coarser numbers and a comparatively small percentage of increased twist for numbers finer than the base.

by the $\sqrt{\text{Count}}$.

Chart B shows in detail how the progressive twist multiple is calculated. It will be noted that the column under the formula

$$\frac{\sqrt{1 + 8 \times \text{counts}} - 1}{2}$$

is only an abstract of Chart A. In this case too 55s was taken as the base.

Other Examples

We are making 36s of a certain quality, spun with 19.5 turns per inch or a 3.25 twist multiple. We want to spin 64s of the same quality; what is the progressive twist multiple to be chosen for 64s?

Present satisfactory twist for 36s = 19.5 turns per inch.

$\frac{19.5}{8 \text{ (from Chart A)}}$ = 2.4375 the basic multiple for all counts of the desired quality twist relationship.

Selecting from Chart A the turns per inch for a multiple of 1.00 according to Duerst, we get opposite 64 the figure 10.82.

$2.4375 \times 10.82 = 26.3$ turns per inch for 64s. If we wish to get the twist multiple, simply divide 26.3 by $\sqrt{64}$ and we get 3.3, the progressive multiple.

We are making 81s satisfactorily with a twist multiple of 4.50, and wish to know the corresponding progressive twist multiple for 20s.

$\sqrt{81} \times 4.50 = 40.5$ turns per inch at present.

$40.5 \div 12.24$ (from Chart A for 81s) = 3.30 basic twist multiple.

3.30×5.85 (from Chart A for 20s) = 19.30 turns per inch for 20s.

$19.30 \div \sqrt{20} = 4.3$ progressive twist multiple for 20s.

To determine at a quick glance the difference between the constant twist multiple and the progressive twist multiple as calculated by the Duerst formula of

$$\frac{\sqrt{1 + 8 \times \text{counts}} - 1}{2}$$

see Chart C. This represents a graphic picture of filling and warp twists for both formulas from 1s to 100s. The dotted line represents the Duerst method and the solid line the commonly used method, the latter being a straight line. The twist for 55s is taken as a base for both systems. The twist for 1s yarn is 2.52 and 3.4 in one case, 3.52 and 4.75 in the other.

For the accepted method of calculating turns per inch (as per filling twist example), 3.4 multiplied with the square root of the counts will give the twist, while on the other hand, and by the Duerst method of figuring progressive twists, 2.52 multiplied with

$$\frac{\sqrt{1 + 8 \times \text{counts}} - 1}{2}$$

or as taken from Chart A, will give the new twist. The latter figures plotted on logarithmic paper will result in a curve.

N. C. State-Wide Textile Safety Contest

The North Carolina Industrial Commission recently submitted the following reports of the Fourth State-Wide Textile Safety Contest.

The Fourth State-Wide Textile Safety Contest was by far the most successful contest ever conducted in the textile plants of North Carolina. An average of 86,920 employees in 228 plants during the contest worked 107,221,912 man-hours with an average accident frequency of only 10.97 lost-time accidents per million man-hours. Although this average frequency is slightly above the average frequency for the Third Contest it is considerably lower than the average frequency for the three previous contests.

The average number of employees during this contest increased 14,017 and the man-hours worked increased 28,100,898 over the Third Contest.

It is interesting to note that 90 industrial deaths and 5 permanent total disability injuries were sustained by employees in all industries during the past fiscal year, 7 of which were in the textile industry, but not a single compensable death or permanent total disability case was sustained and reported by a textile plant competing in and completing the Fourth Textile Safety Contest.

The safety and accident prevention work being carried on in the textile industry of North Carolina is gaining national recognition more and more each year. The plants taking part in these safety contests are to be congratulated in creating these safety contests in the textile plants, this being the original of such contests in the nation. Of the 228 plants completing the contest 43 plants employing 7,644 employees operated 9,418,041 man-hours without a lost-time accident during the contest.

Thirty-one of these plants were in Group One, consisting of plants having 200 or less employees. These 31 plants with a total of 3,717 employees worked 4,466,325 man-hours without an accident. In Group Two, consisting of plants employing from 201 to 400 employees, there were 8 plants with 2,019 employees operating 2,494,606 man-hours without a lost-time accident. Of the plants in Group Three, which employed from 401 to 750 employees each, there were 4 plants which operated 2,455,110 man-hours with 1,908 employees without an accident. All of the plants in Group Four, which employed 751 or more, had one or more lost-time accidents during the contest.

The average lost-time accident frequency of 10.97 for this contest is a decrease of 4.93 accidents per million man-hours from the first contest and a decrease of 0.57 accidents from the second contest, but an increase of 0.95 accidents over the third contest.

This rayon raincoat is said to be the newest member of the rayon family to win acceptance in men's wear. The garment is made of Kasama Kloth, a Crown-tested spun rayon fabric, developed by The Riley Company, New York. The fabric is soft, pliable, woolly, and exceptionally lightweight. It is made waterproof by a special process which is the property of The Riley Company.

Pennsalt to Build New Plant

After nearly three-quarters of a century on its present site in Philadelphia, the Pennsylvania Salt Mfg. Company announces that it is moving its Philadelphia plant to a new location more suitable for an expansion program planned for some time. The research laboratory and pilot plant operations will also be moved to the new site. The executive, accounting, and sales offices will remain as at present at 1000 Widener Building, Philadelphia.

Spinning Room Practice

By Horace L. Pratt

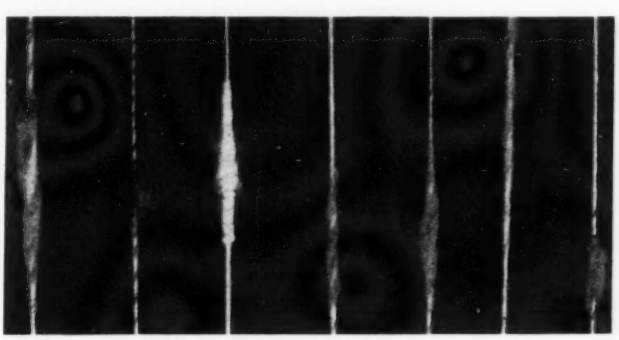
Article 7

• VARIOUS difficulties and defects encountered in the spinning room are discussed in this, the seventh article in the series on spinning room practices. The series began in the March issue, and was continued in the April, May, July, August and November numbers. Article Eight will appear in the January issue, with especial emphasis being placed on calculations. Article Nine, scheduled for the February Modernization and Maintenance issue, will cover spinning room maintenance. If you would like to have all of these articles made available in booklet form for a nominal price, write to the editors.

THIS SERIES of articles would not be complete without reviewing, briefly, at least, some of the troubles encountered in the spinning room, and offering some suggestions as to possible remedies. It seems hardly necessary to say that if the machinery is kept in good shape machanically and properly oiled, if the settings are correct for the stock being run, if a good cleaning schedule is maintained and if good, careful, well-trained help is employed, spinning troubles will be greatly reduced. We do not say that if all of these things are done that all spinning troubles will be entirely overcome, because this would not be a true statement. Many spinning room defects are inherited from the preparatory processes and some of these cannot be detected until considable damage has been done.

Inherited Troubles

Let us consider first some of these inherited troubles. A doubling occurs on one of the fly frames and the speeder operative fails to take this out. This doubling will very likely run right on through the drafting rolls of the spinning frame, and on through the traveler without the end coming down. The entire doubling may run out without being detected. In some cases a singling *may* run, especially in the case of coarse counts, or of fairly long staple cotton. The roving may be weak in places, caused by some irregularity with the running of the speeder. While an occasional end would begin to come down after some of this roving was creeled in the frame, possibly the full significance of the trouble would not be apparent until the entire frame was creeled with this bad roving, and the spinner became "stuck-up". Hard ends cause trouble of this nature. They do not show up very plainly, but they will nearly always come down and will sometimes ruin the leather-covered top rolls.

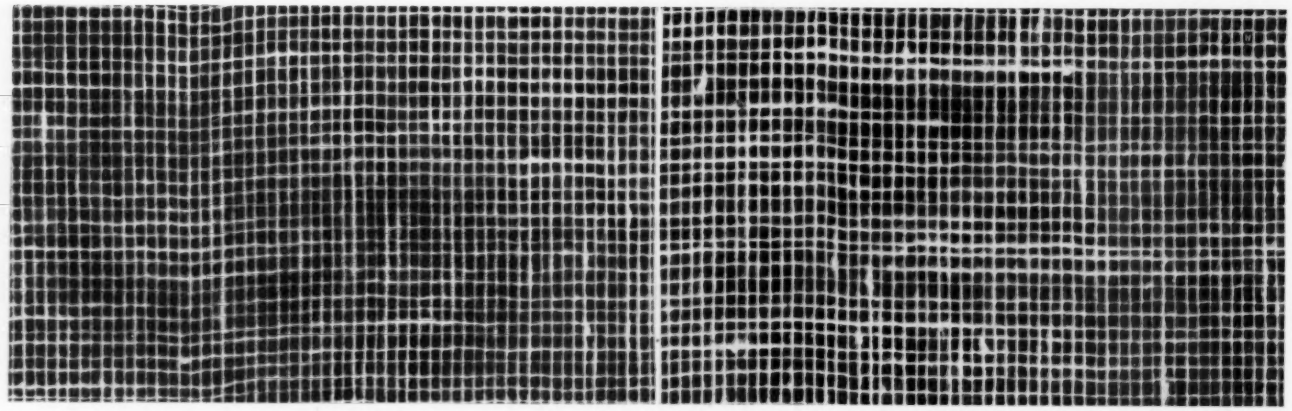


A close-up of some defective yarn that might have been prevented . . . . . .

Oil and dabs, or slugs, or slubs usually can be seen on the roving bobbins in the spinning creel, and there is not much excuse for many of them getting by the spinners, yet we know that many of these defects from the card room find their way into the yarn. These places of oil and dabs are sometimes drafted by the spinning rolls to several times their original length, though often the lumps go through almost intact.

There should exist between the spinning room and the card room a spirit of co-operation. The overseer of the spinning room should not run to the card room the minute something goes wrong in his department and accuse the carder with making a lot of bad roving. And on the other hand when some complaint has been made the carder should make every effort to locate the trouble, or at least he should be sure that his department is not at fault before he begins to cuss the spinner.

Since troubles in the card room and their correction are beyond the scope of these articles, we will merely make a few suggestions as to how these defects may be handled in the spinning room and then we will leave the disposition of these up to the proper authorities in the card room. We believe it to be the usual practice to pay spinners a small amount for detecting singlings and doublings. Each day these bobbins are gathered up by either the section man or a secondhand and returned to the card room. One mill also pays the spinners for oil and slubs or dabs, the amount of the premium being about one-half that paid for singlings and doublings. As the roving is usual-



Enlarged photos showing cloth of the same construction from two different mills. Note the unevenness of the yarn in the fabric at the right. In a competitive market, which of the two will the buyer give preference?

ly marked in the card room with a different color crayon for each speeder tender, it is possible to trace the defect to the proper source. The main thing is to encourage the spinners, by some means, to catch out all the bad roving possible to prevent its getting into the yarn.

We discussed in Article I [page 47 of the March issue] how fly is continually getting into the yarn in the spinning room. Naturally, if short staple, low grade cotton is being run the fly is going to be worse than if a better grade stock is being processed. Since the overseer of spinning has no control of the kind of cotton being run, the next best thing is to adapt the cleaning schedule to his local conditions and to train the spinning help to do the cleaning in a proper manner. We will first list a few common spinning defects, with some possible remedies and will have more to say about cleaning in another paragraph.

Other defects occur, which, though harder to classify, are none the less annoying than the ones listed, in fact since they are not readily apparent they may give more trouble than defects that can be easily seen. Weak yarn, chafed yarn, irregular yarn, that is yarn with thick and thin places are in this category. When the overseer of spinning is confronted with defects of this kind he will look for irregular drafting, dry top rolls, loose steel roll necks, gears that are worn, worn rings and travelers, wrong travelers and worn thread guides. He will then look to his settings. This means roll settings, both top and bottom rolls, thread guide and spindle settings. Our suggestion, in other words, would be to first be sure that all the mechanical faults have been corrected, then look to the various settings.

No doubt every mill has at some time or another made tests or kept records of ends down or end breakage over certain periods. The value of such a report depends quite largely upon the person who makes the test and upon his knowledge of, and experience in spinning. The defects that we have

DEFECT	CAUSE	SUGGESTED REMEDY
Oil (usually light yellow or reddish).	Too much oil on roll tips or shell roll arbors; too much oil on roll stands or roll stands worn. Improper oil.	See that correct oil is used. Examine oil spout to see if hole is too large. Train oilers in good oiling habits.
Slubs or dabs (soft thick places, either white or discolored as from waste).	Careless piecing up of ends down; bits of clearer waste in yarn; long tails in creeling, roving traverse too long, allowing roving to run off the boss of the roll; waste from wiping back sides or "running out" fronts; waste from fanning off, blowing off or brushing sides or from sweepers. (This list might be extended).	The remedies here are rather obvious, but are not always so easy to apply. Watch setting of roving traverse. Examine clearer flannels and replace them when they begin to wear smooth. Train cleaners and spinners in best methods of cleaning. Constant personal attention is necessary to keep down these evils.
Oily dabs or slubs.	These may come from bits of oily waste dropped while picking rolls, from cleaning roll stands or may be blown into the yarn from around the bearings of the cylinder. from around the cam or from some other part of the frame that has to be oiled.	Greater care in picking rolls and in general cleaning of the frame. It is usually best to stop all adjacent frames while blowing off and then have some responsible person pick off all lumps before the frame is started. If possible, blowing off should be done just after doffing.
Sloughing-off.	Slack bands, and bands that are too large for whorls; worn cams and cam rolls causing ringrails to dwell at changes; travelers too light for yarn counts; filling cam set improperly, that is binding the wrong way.	Sloughing-off, in the case of filling yarn. is not always simple to remedy. Look for worn cams and cam rolls, or pitman rolls choked. Teach spinners to remove slack bands. Use correct travelers. Try setting cam to bind from nose to shoulder.
Cockled yarn.	Rolls set too closely or staple too long for present roll setting. Laps on back or middle steel rolls interfering with proper drafting.	Correct roll setting. Keep steel rolls in good condition to reduce likelihood of laps forming.
Tangled yarn (warp build).	Taper at top too short; worn cams and pitman rolls; traverse going too high on bobbins; lifting rods sticking; ringrails out of line.	Periodical inspection, regular and systematic overhauling and constant personal supervision necessary.

previously listed may, and frequently do cause end breakage. In the case of the slugs or dabs, however, these may go right on through the traveler and into the yarn, so these defects are considered as being present in the finished yarn. A badly built bobbin may be the cause of an end coming down, but frequently these bobbins will run full, only to tangle at the spoolers. We are giving herewith a classification of end breakage, however we are making no claims that this by any means exhausts the list of possible causes.

CLASSIFICATION OF END BREAKAGE	POSSIBLE CAUSES
Low Humidity	Dry outside atmosphere; insufficient humidifiers. (When the humidity gets too low static electricity causes the fibers to repel each other and the ends begin to come down).
High Humidity	Damp or rainy weather; regulator failing to cut off humidity. (When the humidity is too high the fibers tend to cling to each other and may not draft properly. If too much moisture is present the fibers will have a tendency to adhere to any slight rough place on the rolls and lap up quickly. Dry fibers, on the other hand, are fluffy and may run loosely from the rolls, when the end comes down, quickly flying into adjacent ends, causing them to come down).
Broke Backs (Roving broken back)	Weak or very uneven roving; stretched roving; blunt roving skewers; cracked roving steps; tails from roving on top of creel winding around end of skewers.
Roving Running Out	First layer not laid properly on bobbin on speeder or fine frame. (Should be started with traverse about one half way on bobbin, and on the up-stroke; this also facilitates stripping roving from bobbin, especially if done by hand. If spinner is overloaded, or "stuck-up" the roving may run out faster than she can get to it.
Dabs or Slubs in Roving	Clearer waste from fly frames; waste from blowing off, fanning off, cleaning overhead or cleaning belts in the card room. Most slubs that get by the speeder will also go through the spinning frames, but some of them will come down.
Singlings and Doublings	These defects from the card room will not always cause ends down, but may go on through and show up in the finished yarn. The causes are beyond the control of the spinning department, but spinners should be on the alert to catch these defects.
Slubs or Dabs from the Spinning Frame	Clearers not picked often enough or flannels worn; scavenger rolls not cleaned; bits of waste getting in yarn from spinners or cleaners not being careful in running out sides or other cleaning near the yarn; blowing off, fanning off or brushing frames, overhead cleaning.
Roving Running to Side of Rolls	Roving trumpet loose; traverse stroke not set properly; nebs may slip, allowing roll to get out of line.
Rolls Channelled or Grooved	Doublings or hard ends may cause this.
Fluted Top Rolls	Rolls standing too long with the weights on; improper or insufficient lubrication, as a dry roll, especially shell rolls, seem to be easier to flute; poor quality roll covering might be a possible contributing cause.
Rough and Damaged Top Roll Covering	Laps on the rolls; damaged by stand hooks; age.
Steel Roll Laps	Dirty flutes and burrs on rolls.
Lint in Roving Trumpets	Lint may accumulate here as at other points on the frame.
Thread Guide Off-Center or Bent	Thread guide may become bent or loose, allowing it to get off-center.
Separator Blade Bent	We have known separator blades to become bent so that the travelers would strike them, causing ends down.
Travelers Worn or Off	This may be caused by failure to change travelers often enough; rings may be worn to the extent that travelers need to be changed oftener.

CLASSIFICATION OF END BREAKAGE	POSSIBLE CAUSES
Traveler Cleaner	The traveler cleaner may become bent so that the traveler will strike it, causing ends down.
Spindles Out of Plumb	Spindle base may be loose; ring holder may be loose.
Bands Off	Extreme conditions of humidity or temperature; damaged cylinder; worn whorls; defective band; band not properly tied; also the bands will eventually wear out.
Slack Bands	These may cause ends to come down, though they frequently will run, producing a soft, badly built bobbin of yarn.
Tangled Bobbins	Lifting rods choked; foreign object under lifting arms; ringrails not level; builder motion out of order.
Carelessness of Operatives	Ends down in doffing, cleaning, getting up other ends, creeling, etc., may be reduced by training spinners, doffers and cleaners to take pride in their work. Insist upon good work habits on the part of all operatives from the section man to the sweeper.
Wobbly, or Shaky Spindles	Old and worn spindles and bolsters; improper oiling.
Lint in Travelers	Traveler cleaners set too far away from traveler; type of traveler not suited for work; ring flange too wide.
Bad Bobbins	Chokes in bobbins; bobbins that are worn or split. As these will not fit down on spindles properly, bobbin may become loose, causing ends down.
Miscellaneous	Breakage to doubtful causes; these may be uneven roving or other causes that are not apparent when the end is examined after coming down.

While the best spinners sometimes get "stuck-up" to use a good mill expression, it is usually the spinners who are running *only* a *few* sides who have the most trouble. The weather, the humidity and other things have a lot to do with the way the spinning runs, but well-trained, careful operatives have much to do with this too. Spinning is an operation that requires great dexterity on the part of the operative, so a person with large hands, short, blunt fingers or who is clumsy in his or her movements will not usually make a good spinner. Of course

with proper training and experience one may develop the manipulative skills incident to spinning, but a person with a natural aptitude for this kind of work will have a decided advantage over one who is not so well endowed by nature.

Because of the speed at which doffers have to work they are not always the most careful people in the world. However with the proper supervision doffers can be trained to exercise a certain amount of care in doffing as well as to develop speed. Some of the things that doffers may do to help are to be sure that all bobbins are well down on the spindles, to dispose of bad bobbins (each mill should work out the method best suited to local conditions in handling the matter of disposition of defective bobbins), to handle separators carefully, to see that all thread guide lappets are down in place and to piece up all ends that are down after doffing. Of course it goes without saying that the frame must be stopped with the traverse in the correct position for doffing, this depending upon the type of wind and the make of frame. In the case of filling frames the doffers can render a service by reporting bunch builders that may be out of order.

While on the subject of well-trained operatives and their relation to defective work in the spinning room we must not neglect the section men, the oilers and the cleaners. The cleaners, last mentioned, will be discussed first. Of necessity cleaners will usually be persons who are learning to be spinners or possibly some who seem unable to keep up the minimum number of sides. Constant supervision to see that cleaning schedules are being followed and that cleaners are doing their work correctly seems to be about the best that can be done.

Oilers may sometimes be kept on the job long enough to become very proficient in their work. We have found it to be economy to keep good men on oiling even if it becomes necessary to pay a little higher rates than those prevailing for this type of work. A good oiler can easily save the amount of his wages in oil saved and smaller repair bills and extra production gained. The work of a careful oiler is reflected in the quality of the yarn turned out by the spinning room. We probably do not need to remind the reader that well lubricated rolls will produce much better yarn than dry rolls. And of course the same reasoning will apply to spindles. On the other hand too much oil will play havoc, getting on the rolls and into the yarn, will get all over the frame, collecting lint and dust and will drip on the floor,. creating an accident hazard.

It is hardly necessary, after all that we have had to say about the section man, to elaborate on his duties at this point, except to add that in addition to keeping his eyes opened for anything that might be going wrong on his section, he should endeavor to be a good, careful workman, so that the spinners will be proud to work on his section, and will strive to make their work a credit to the well-run section.

We are giving a cleaning schedule as used in one successful spinning room. The remarks we are about to make concerning the cleaning schedule will apply equally as well to the oiling schedule, the schedule of inspection or to any other plan of getting things done. We are a great believer in doing things according to schedule. But we also know from experience, and some of it not so pleasant, that unless these schedules are followed up closely by the overseers and secondhands such schemes to get work done are almost worthless. No matter how good a schedule of work may seem to be, these things just will not work successfully unless properly supervised. In this connection we are reminded of the little boy who kept coming to the table without washing his face and hands, though he had been repeatedly sent back by his mother to do this task. "Why do you persist in coming to the table without washing your face and hands when you know I always send you back to do this?" asked his mother. "Well, one day you forgot!" he replied. Workmen are sometimes like that. In fact, I wonder if we all do not have to be checked up on by somebody once in a while, or we will likely get in a rut, and probably neglect things that do not at the moment seem to us to be so important.

Cleaning for long draft on this type of work would be about the same except top clearers would be picked four times each shift; and for certain types of long draft the rolls would have to be picked oftener on the coarse yarns.

Cleaning Schedule

Stock Used	⅞-inch Local cotton and 1-inch Western cotton
Yarns	7s to 15s
Type of Spinning	Conventional three-roll system
Rolls Picked	Once daily (one-half picked each shift)
Pick Top Clearers	Twice each shift
Pick Steel Rolls	Twice each shift
Wipe Backs and Fronts:	Twice each shift
Brush Rails	Three times each shift
Wipe Top and Bottom "Roving"	Once each shift
Wipe Heads	Once each shift
Clean Creels	Once each shift
Extra Cleaning	
Clean Stands with Hooks	Monday: One-half each shift
Clean Rings	Tuesday: One-half each shift
Pick Weights and Rods	Wednesday: One-half each shift
Brush Out from Under Frames.	Thursday: One-half each shift
Wipe "Lids" and Pick Separators	Friday: One-half each shift

Friend in Need

Pete Gallagher went to his foreman late one afternoon recently and, in great concern, told him that he had just received word that his 12-year-old boy had been in an accident at a boys' camp some 30 miles away. He asked the foreman if he might leave for the rest of the day and go to his boy.

The foreman knew that Pete had no car and that the boys' camp was located at a difficult point to reach except by car, so he asked, "How are you going to get over there, Pete?"

"That's got me bothered because my brother-in-law, who's got a car, is out of town," was Pete's reply.

"Then I'll drive you over there, myself," the foreman volunteered.

He left the department in charge of his assistant, took Pete and his wife in his car, and drove at once to the camp. There he helped them to arrange to place the boy in a hospital. Later, when the boy was sufficiently recovered, he went over with the father to bring the boy home.

This foreman helped out in a time of need because he had a sincere feeling of friendliness for his men and not because of any desire to put the man under obligation to him. The fact is, however, that Pete Gallagher will repay the foreman many times over for this friendly act in loyalty and cooperation he will always give his foreman.—*"Management Information", Elliott Service Co., Inc.*

The Application of Naphthol Dyes to Cotton and Other Textiles

By Joseph Lindsay, Jr.

Part 2 of Two Parts

THE first installment of this two-part article on naphthol colors by Mr. Lindsay appeared on page 59 of the November issue, and covered: naphtholating the material, intermediate treatments, developing, after-treatment, and diazotization of the bases. The present installment, which concludes the article, covers the chemical constitution of the naphthols, fast color salts, the pH of the developing bath, substantivity of naphthols, printing with naphthols, etc.

Chemical Constitution of the Naphthols

BETA NAPHTHOL is perhaps the best starting point from which to consider the naphthols as a group. When this compound, in the form of its naphtholate, is treated with carbon dioxide under pressure beta oxynaphthoic acid is formed. From this latter product we have many substituted and modified products which are sold under the general trade name of naphthols. The combination which takes place between the naphthol and the diazotized amine to form the dye on the fiber is as shown in Fig. 6.

Fast Color Salts

In the manufacture of the water soluble color salts from the bases, there are several methods used for stabilizing these diazo salts in the dry form for storage and shipment. One common method is by dissolving the diazonium salt (the diazotized base) in a mineral acid, evaporating it to a small volume, and then taking up the remainder of the water with an anydrous salt like sodium sulfate.

The pH of the Developing Bath

The pH of the developing bath is an important point of control. Some of the diazotised compounds couple more satisfactorily if used on the organic acid side and others at the neutral point. Because of this and the fact that the naphtholated goods always contain alkali, the amount of alkali binding agent should not always be the same, but should be adjusted to meet the best developing conditions of the base used. Additions of weak acids or alkalies are also useful for slowing up or speeding the development according to the dyeing machine and the fabric being handled.

This question of speed and efficiency of coupling must always be taken into consideration if mixtures of bases have to be used for any reason. The bases can be classified into three or four groups of similar developing qualities, and only those in the same group should be used together in mixtures. Of er, course, the best policy is to avoid mixtures altogether, if possible, since it is much easier to produce uniform results if only one instead of two or more developers are used.

Substantivity of Naphthols

The naphthols also may be classified in groups according to their affinity for the fiber. Looking at these products from the point of view of substantivity, we find some naphthols which give as high as 90-95 per cent exhaustion while others give only 20 per cent or less when applied to cotton. Both classes have their practical uses, and the type of

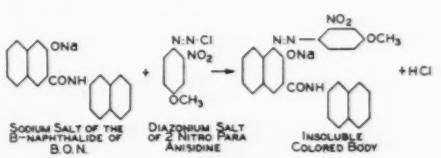


FIG. 6

naphthol to be used on a certain machine is determined largely by its substantivity. The highly substantive groups are the most satisfactory to use for dyeings made on raw stock, yarn, and piece goods on the jib, while the non-substantive types are best applied on the padding type of machine. The first groups give good results if only salt rinsed as an intermediate treatment, while the non-substantive types should be dried before coupling. This latter group is almost entirely confined to piece goods, since the drying of the material in any other form is a rather difficult and unsatisfactory process. Their lack of substantivity is an asset for pad or continuous machine work since on this type of equipment it is only desired to saturate the goods uniformly from end to end. If a naphthol has high affinity for the fiber, it will be taken up from the solution selectively tending thereby to make uniform naphtholation very difficult. The less substantive products are selected from the solution in only a small degree and hence lead to better uniformity of shade from end to end of the goods.

Printing with Naphthols

The printing of these colors is only the coupling of the naphthol with the diazotised amine by a different mechanical set-up than that used in dyeing. In one important method the cloth is naphtholated on a padder, dried, taken to the printing machine and printed with the thickened color salts to give the colors necessary for the design. Each color box on the printing machine contains a cold diazotised base or salt to produce the shade for its part of the pattern. The unprinted portions of the cloth show the light yellow of the uncoupled Naphthol AS which is ordinarily used for this work.

After printing the cloth is dried and passed through a weak caustic bath to prevent the possible coupling of excess color base with the naphthol ground which is outside the desired pattern. A final hot soaping is given just as in the case of dyed material. The above method is known as the salt-printon style and gives excellent results for many patterns.

Another method for producing the same result on the cloth is by the use of special mixtures of the naphthols and color bases made inactive by special treatment. These stabilized products are printed directly on the white goods, but show very little color until treated with acid. After printing, the cloth is passed through acid fumes in a continuous aging system, then rinsed and soaped. These mixtures are rather more expensive than the straight naphthol and color salt, but eliminate the naphtholating process. Some of the shades produced by this method are not quite as fast as the corresponding salt-naphthol combination printed on the same goods.

Characteristics of Naphthol Dyeings

The naphthols as a class have shown a steady increase in use and, as in all things, there are good reasons for their growth. The most important fact is that they are of good all around fastness, being surpassed in this respect only by the vat colors. Their cost in general is less than the vats, and in some shades such as deep reds, they are more brilliant and very much cheaper than approximately the same shades in vats. The colors may be applied on almost any type of dyeing equipment from a hand tub to a continuous machine.

Cotton is the principal fiber upon which these colors are applied, but they give very satisfactory results on the other vegetable fibers, showing particularly full and bright on rayons. They can even be dyed on acetate silk by a modified method from that for cotton. Dyers of animal fibers, such as wool and silk, are little interested in these dyes, since these fibers are weakened by the caustic soda used in dissolving the naphthols, and since there are acid, mordant, and direct colors which meet the fastness requirements of these animal fibers at a very low cost.

Although the naphthol colors have many virtues, they are of course not perfect in all respects, and have some undesirable characteristics which may cause trouble during and after applying. For one thing the line of shades is not as complete as many other dyestuff classes, since there are no satisfactory bright greens or bright blues in the group, these two shades being among the most used in the other dyestuff classes.

Among their other disadvantages, we find their tendency to rub, or crock, badly, if not carefully handled in the process of application. The steps to be especially watched are the intermediate treatments and the rinsing and soaping operations. If this rubbing is pronounced after dyeing, the best method of remedying the fault is to give the material a thorough boiling soap treatment on a machine which will mechanically beat or squeeze the loosely precipitated color pigment from the goods.

Naphthols do not cover dead cotton specks or neps satisfactorily unless the goods have been given at least a light mercerization before dyeing. This mercerization appears to swell the unripe fibers and increase their affinity for the dye. Dark spots or specks may also appear on the goods from undissolved particles of base, this difficulty may be eliminated ordinarily by straining the base or salt before adding it to the machine.

Some of the naphthol combinations are sensitive to dry heat and show marked changes of shade when hot ironed or dried on hot cylinders. This is particularly true of certain orange and brown combinations and calls for careful selection of the naphthol and coupler if these shades are to be produced on piece goods.

Naphthols on Rayon

The same general procedure may be said to apply for dyeing naphthols on rayon as on cotton. The rayon must of course be handled very carefully to prevent mechanical injury while wet, and the soaping after-treatment should be carried out at a temperature of 140-160 degrees F. instead of at the boil. Too high temperatures in the soap baths for rayon may give an egg shell-like luster to the fibers. Rayon has better affinity for these colors than ever mercerized cotton and therefore yields deep, brilliant shades with much smaller percentages of naphthol than required for the same depth on cotton.

The problem of distinguishing these naphthols combinations after they have been dyed is important in every plant and laboratory handling fast

(Continued on page 112.)

This discussion on naphthols by Mr. Lindsay is based on his teaching material at Clemson College, where he is a member of the textile school faculty, and upon information on the subject utilized in lectures on naphthols delivered by him at the school of Ciba Company, Inc., in New York City last summer. Its publication here follows logically our recent presentation of a series by E. W. Price, on "Modern Methods of Dyeing", which ended in the September issue and which covered, in eight articles, the basic, direct, acid, sulphur and vat dyes.

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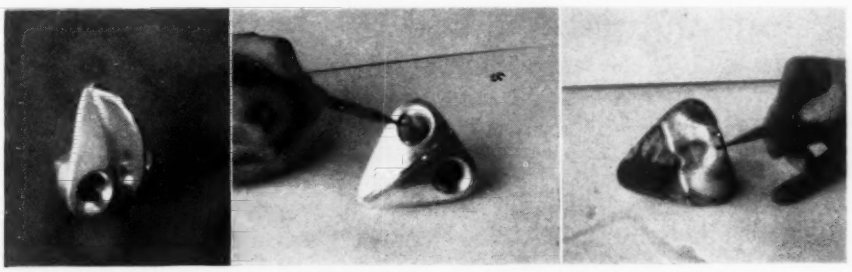
(The articles by E. W. Pierce, referred to, appeared under the title, "Modern Methods of Dyeing", and appeared as follows: Article 1, development of color sense, December 1938 issue; Article 2, textile fibers and dyeing equipment, January 1939 issue; Article 3, the basic dyestuffs, February 1939 issue; Article 4, direct colors, March issue; Article 5, acid dyes, April issue; Article 6, treated acid dyes containing metal and chrome mordant dyes, May issue; Article 7, sulphur colors, July issue; and Article 8, vat dyes, September issue.

Harmony Grove Mills Use Split Sliver Drawing

THE HARMONY GROVE MILLS, Commerce, Ga., have employed a device for dividing the web on a drawing frame so as to make two ends of sliver deliver into each drawing can instead of one. Inasmuch as the resultant sliver size is reduced by one-half, the split sliver is fed into the slubber as the next process, which in turn produces roving suitable for spinning. The device thus eliminates a process of roving frames; it has been employed on both Whitin drawing frames and H & B frames, and the only additional attachment necessary on the drawing frame to effect this splitting or dividing of the web consists of a double trumpet, having a divider between the two trumpet holes to separate the web as it is delivered from the drawing rolls, and which permits two ends of sliver to be placed in the same drawing can. The system for using the double trumpet was designed by J. A. Asbelle, plant superintendent, who is understood to be protected on the invention through a process patent —No. 2,181,777.

A supplementary device, similar to the twin gear or butterfly gear on a roving frame, is used to oscillate the drawing cans for about a turn and a half to the right, and then a reciprocation movement of a turn and a half to the left. This movement imparted to the cans prevents the two ends of sliver, which are in close position to each other, from becoming twisted. Should the can revolve continually in one direction the ends would contain a certain amount of twist for each yard of sliver, naturally preventing the ends of sliver from pulling out of the cans evenly at the slubber.



Three views of the split sliver trumpet. Sliver enters at opening shown in center picture and passes out small opening shown in picture at right . . . . . .

At present the new split-sliver trumpets are applied only to the final or finisher drawing, but it is expected to apply them to the breaker drawing. When this is done—the placing of the trumpet on the breaker drawing—it will allow a certain amount of doubling to take place in the finisher drawing, thereby spreading out and further evening up the sliver going into the finisher drawing. This is the same principle of doubling as is applied to the other processes in the card room and the spinning room.

A lifting roll to assist in pulling the sliver from the cans is already in use on slubbers, but when used in conjunction with the sliver from the split-trumpet this roll on the slubber is raised about 20 inches above the drawing rolls. On conventoinal systems the roll is practically level with the drawing rolls. On conventional systems the two ends of sliver a greater distance to travel, thereby allowing them to become separated before they enter the drawing rolls of the slubber. Also on the slubber the eyes which receive the ends of sliver and guide them to the drawing rolls are placed 8 inches apart instead of 4 inches as on the regular guide board. Two ends of the sliver go through each of these guides, but only one end of the sliver passes into each delivery of the slubber.

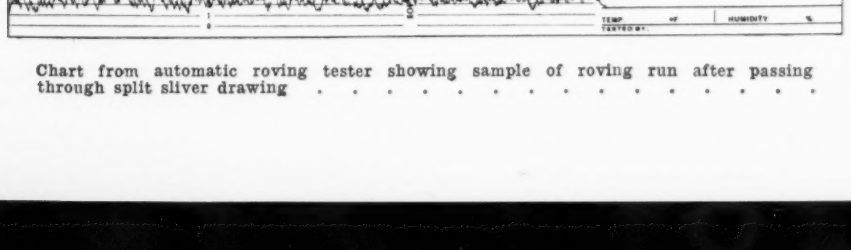
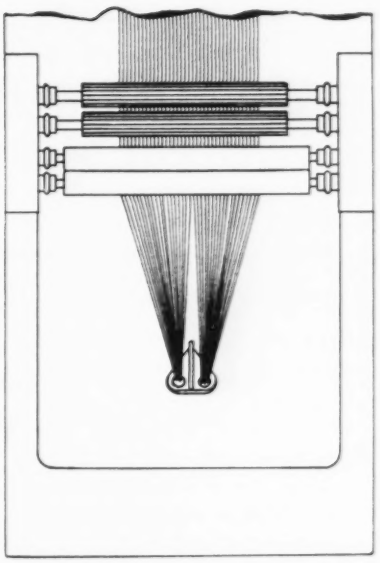


Chart from automatic roving tester showing sample of roving run after passing through split sliver drawing . . . . . .



Illustrating operation of split sliver drawing . . . . . .

The first question that arises in the mind of an observer is the effect of running the work with only doublings from the breaker drawing to the finisher drawing. Observation shows that the work at this mill runs excellently and Mr. Asbelle points out that the secret of all good work is in the performance of the pickers and cards.

The system is not intricate. The main point is the "idea". Like many other developments in the world of science and engineering, it had its inception partly through error. It seems that the boss carder and Mr. Asbelle were working in the card room one afternoon and noticed that the web was splitting on the finisher drawing. Mr. Asbelle said he saw no reason why the web should not be split anyhow, and why two deliveries instead of one could not be made to go into the drawing can. Thus began work on the plan, which was gradually developed.

Mill Does Not Stutter

In answer to a decision by the National Labor Relations Board, a large southern mill says:

"The mill does not feel that the findings of the National Labor Relations Board were justified by the facts developed at the trial, and therefore the mill does not intend to comply with the board's decision."

Records and Reports Help Control Weaving Seconds

This system to control seconds was explained before the STA meeting at Durham, N. C., Nov. 4.

Prepared Exclusively for "Cotton"

By C. W. Howell

Erwin Cotton Mills Co.
Durham, N. C.

MILLS HAVE various methods of controlling the seconds or imperfect cloth made in the weave room. And though the keeping and making of records may seem particularly burdensome at times, the system we have at our plant for controlling the imperfect work in the weave room has proven itself to be efficient and effective.

Imperfect cloth doesn't just happen—it is made; and for every cause of imperfection there is a remedy. Some sort of system to control bad work should be installed in the weave room and cloth room of every mill, and regardless of the size of the mill, the system that we are describing here will operate successfully.

Fig. 1 illustrates the notice to the overseer of weaving and is used when the cloth inspector finds a roll of cloth that continues to show imperfections without there being any signs that the fault has been corrected. These notices are collected at brief intervals from the cloth room and the overseer distributes them among the loom fixers having looms making faulty work. In this way, the loom fixer has an opportunity to correct the defect immediately. Many times the loom will give trouble without being noticed, such as skip filling on the bottom side, jerked-in selvage and kinky filling. With the notice as a definite reminder, the fixer has something tangible to work with and knows what to look for at the loom.

A daily inspection report, Fig. 2, is made each day by the cloth inspector and carries the inspector's name for record. The report shows the construction of the cloth and the number of rolls inspected. Several of the most frequent causes of imperfections are listed and additional space is provided for any causes that are not listed. When imperfect cloth is found, the loom number and the number of yards of faulty cloth are listed. This report not only shows the amount of work done by the inspector during the day, but is used later in making a more detailed record sheet.

This more detailed record, termed the weekly record sheet, part of which is shown at Fig. 3, plots the location of each loom in the plant, gives the weavers' and fixers' stands and sections, shows difference in first and second shifts, and seconds for each individual loom. It could be used for other purposes, according to the demands of the weave room and the need for additional records.

Some other uses of this weekly record sheet for the weave room are as follows: It provides a clear and accurate record of the imperfection on each loom and at a glance a comparison can be made between each loom, section, and cloth construction; loom production in cuts of cloth may be tabulated for each loom for either shift; it is a perpetual loom list for cloth construction changes; and it can serve as an individual

DAILY INSPECTION REPORT

The Blank Cotton Mills Company No. —

Inspector _____ _____ 19____

	FABRIC A SECONDS	FABRIC A LOOM Nº	FABRIC B SECONDS	FABRIC B LOOM Nº	FABRIC C SECONDS	FABRIC C LOOM Nº
BAD WEAVE		3 49		98 73		5 351
BAD WEAVE	90/10	76 63		21		90
THREADS OUT		70 65				
DOUBLE THREADS		14 10				
THIN PLACE						
THICK PLACE						
SKIP FILLING			98/37			
SMASH						
STRINGY SELVAGE						
REED MARK						
HARD SIZE						
SLASHER SPOTS						
BLOW OFF OIL						
BLACK OIL						
OILY WARPS						
OILY FILLING						
KINKY FILLING	65/51					
ROPY FILLING					351/22	
JERKED IN SELVAGE						
DRAW BACK						
TEMPLE MARK						

NOTICE TO OVERSEER WEAVING
Date 10-3 1939
Loom No. 43
Is now making imperfect cloth as follows:
Jerked in selvage
Right side
J. A. S.
Overseer Cloth Room

FIG. 2

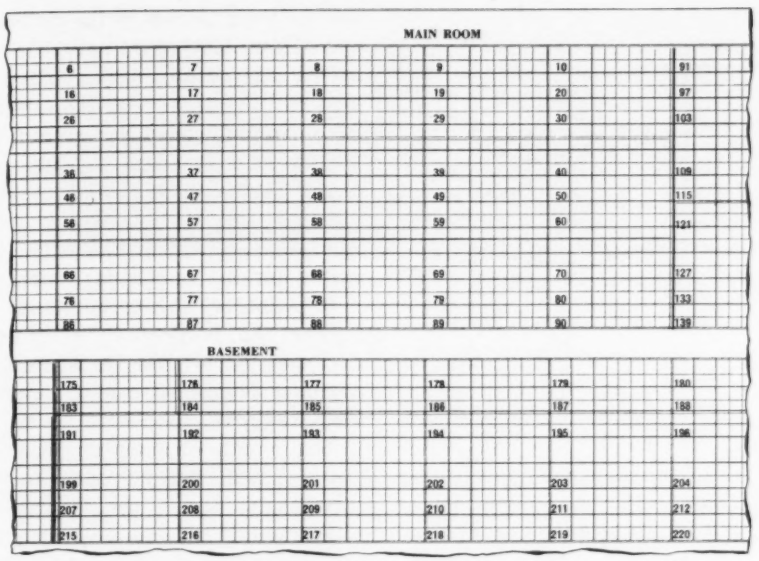


Fig. 3

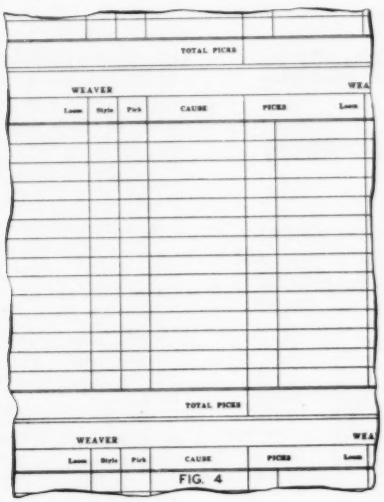


FIG. 4

per cent of our looms were producing 27 per cent of the total imperfect cloth, while 40 per cent of the looms were charged with only 10 per cent of the cloth. It was not uncommon for some of the looms to have several hundred yards of imperfections each while others were as low as 10 yards per loom. Another interesting fact was that four of the major causes of our imperfections were responsible for 75 per cent of the total yards of seconds. This varied from 28 per cent for the highest to 14 per cent for the lowest. With such information handy, it is possible to formulate a plan to improve on the imperfections in the future.

At Fig. 4 is seen another report which we call the seconds report. The loom number, cause, and the number of picks of the imperfection are placed each day on this sheet so that the loom fixer and weaver may see them and observe the loom for a repetition of bad work. This may seem a duplicate of a part of the weekly record, but both will have a definite place in the control of imperfect cloth. It is from this record that the percentage of imperfect cloth is obtained for each loom fixer and weaver.

The pick-out and smash sheet shown at Fig. 5 has space provided for the weaver to list the loom number having the smash or pick-out, the cause, and the length of the pick-out. A study of this record for supplies and replacement cost.

From this record it is possible to obtain the number of yards and the cause of the imperfection for any loom or section for any given period of time. A good procedure is to compile the results quarterly or at shorter intervals and make the findings known to the loom fixers. With this chart, a loom that continues to produce imperfect cloth may be detected and the necessary correction made. This report should be posted daily and placed where the loom fixers and weavers may observe it.

Some interesting facts have been determined from the weekly record: At one time we found that 10

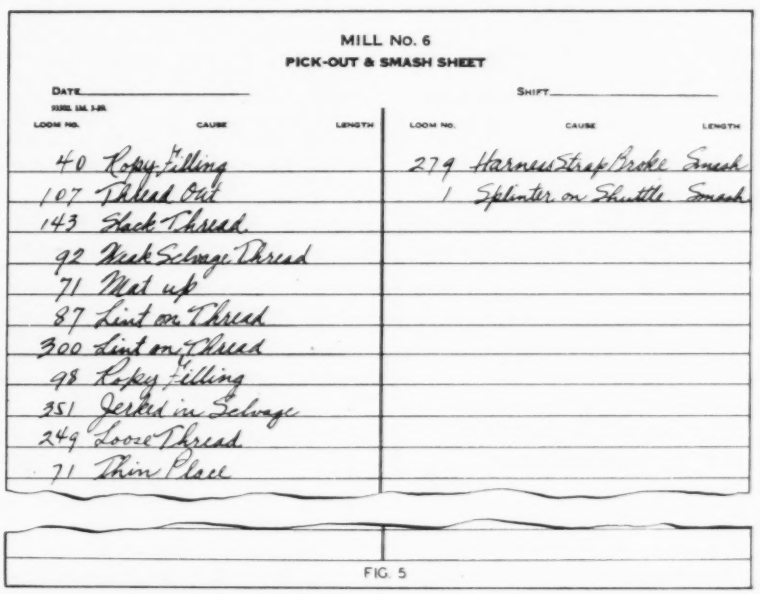
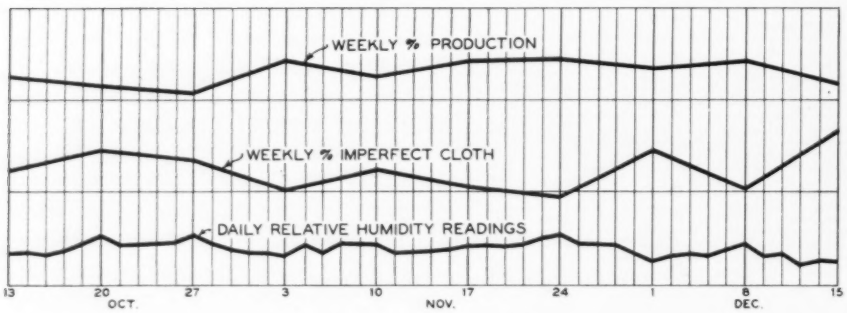


FIG. 5



ord will reveal the major causes of pick-outs and smashes and will aid the weave room overseer to correct some of the conditions that may not have been revealed previously. As the causes of pick-outs and smashes are reduced, the amount of imperfect cloth will also be reduced.

For a comparative study we chart each week on graph paper (Fig. 6) the percentage of production and the percentage of imperfect cloth produced. This chart may also be used to record the daily relative humidity readings. It has been observed over an extended period of time that relative humidity is one of the most important factors in the control of imperfect cloth. Our weave room overseer realizes this and strives to maintain the relative humidity best suited for his particular work.

It is interesting to note that the *higher the percentage of production the lower the percentage of seconds.* This is of course a mutual advantage.

The worth of such a system as outlined will depend upon the determination to see that it works—and when it functions properly it will more than pay for the effort required to keep it going.

STA Hear Sanforizing Talk; Discuss Weaving Problems

THE WEAVING-SLASHING section of the South Carolina division of the Southern Textile Association held its regular fall discussion meeting on Saturday, November 11, at Clemson College, S. C. The textile school building was open for inspection by the visiting mill men, and student-members of Phi Psi, the national textile fraternity were present to conduct the visitors through the school both before and after the technical meeting. The textile department is now housed in a new building, having outgrown the quarters that it had occupied until this year. H. H. Willis, dean of the textile school, welcomed the members of the Association and advised them of some of the work that the Clemson textile school is doing.

P. B. Parks, Jr., Erwin (N. C.) Cotton Mills Company, who is president of the Southern Textile Association, was present and addressed the group for a few minutes, explaining that membership in the Association entitles one to receive the book of proceedings of all of the meetings, but urged everyone interested to attend the technical discussions, whether a member of the Association or not.

William H. Harriss of Cluett, Peabody & Company (controllers of the Sanforizing process patents) addressed the division and explained the principle of Sanforizing. He then pointed out the necessity for mills controlling the shrinkage performance of their product, saying that controlling twist in yarn is one of the most important factors in doing this. Extracts of his remarks follow:

Harriss Talks on Sanforizing

"Attention [on cotton goods] has been concentrated on proper width, warp yarn, sley, filling yarn, pick and weight for any given construction * * * however, no attempt has been made to standardize yarn twist, nor cloth shrinkage performance.

"Since the advent of Sanforizing, the entire textile trade as well as the general consuming public has become 'shrink conscious' when thinking of fabrics and we now realize that other elements constituting a fabric, particularly the twist and tension in the component yarns, must get more consideration; as these contents have a direct bearing on a fabric's finishing and shrinking potentialities.

" * * * Twist must be put under better control as some gray fabrics have reached the market with filling twist all the way from standard to 40 per cent over, the latter resulting in excessive shrinkage, detrimental to all concerned. It would seem impractical to attempt to place a tolerance on cloth shrinkage itself but rather on those elements that cause shrinkage.

"We have made many shrinkage tests ourselves on standard gray goods and find that excessive twist seems to cause excessive shrinkage. However, we have to make our tests on samples that reach us through the marts of the trade, so have no way of eliminating other variables from mill to mill, such as setting of the loom, tension in shuttle and on warp yarn, that might also cause some of the excess shrinkage. On the other hand, you mill men are in position to prove your own cloth shrinkage performance by test on the same loom under constant conditions other than twist. Our tests on the same construction of gray goods, but made in different mills, often show quite a variation in shrinkage, both warp and filling, and the finger of suspicion points to corresponding variance in twist.

"However, before we go into the question of a fair twist tolerance it would seem well to examine thoroughly the present warp and filling twist standards as to their fitness for modern improved mill practices.

" * * * Two pieces of print cloth, both 39 inches in the gray but from different mills, will finish and Sanforize with nearly one inch difference in the width, when put through identical finishing processes. Here the trouble must be largely a question of twist in the filling.

"As a rule, more twist means more shrinkage. In time mills may find that this policy of shorter cotton with more twist will react to their detriment by giving their goods a bad shrinkage reputation in the trade so that they can only be sold at a discount from market quotations."

Technical Discussion

In answer to a question, Mr. Harriss explained that if the twist in the yarn remains constant, the shrinkage of the fabric will be constant also, but that if for some reason the twist is greater in the bobbins of filling going into the same cut of cloth (probably caused by difference in running condition on each side of the spinning room and more twist being placed in some filling than other) this will

Report and snapshots by John C. Fonville of "Cotton".

Snapshots made at the STA meeting at Clemson, November 4.

be noticeable in the cloth, but to a small degree.

The technical discussion was led by G. G. Simmons, Drayton Mills, Spartanburg, S. C., chairman of the South Carolina division. The first question pertained to practice in humidifying the weave room over the week-end, to the end of preventing sloughed-off filling on Monday morning. Frank D. Lockman, Monarch Mills, Lockhart, who uses hot air for heating purposes, explained that if the weather is particularly cold, hot air is blown into the weave room over the week-end, and also the humidifiers are run for an hour or so over the week-end. The humidifiers are run before starting time on Monday mornings. This plant uses a penetrant in the humidifier water to aid the water in getting through the filling. No conditioning fluid is used. Neither does the mill run its filling low on Fridays.

Joe Lyons, Orr Cotton Mills, Anderson, handles his humidity problem similar to the manner in which Mr. Lockman does, but during the winter he runs his filling low on Fridays and on Monday morning re-conditions all filling in the boxes and in the batteries to prevent sloughed-off filling. On very cold week-ends the humidifiers are kept going.

It was brought out that years ago it was the custom to condition filling by steam, but no one present at the meeting does this now.

Salvaging Dirty Filling

For a method of salvaging dirty and oily filling, C. F. Stansell, Victor-Monaghan Company, Greenville, told of using a copping machine and re-winding usable filling. In other words, if a quill of filling has an oily spot near the butt of the quill, the clean filling (down to the oily spot) is re-wound and the dirty filling discarded.

R. T. Stutts, Woodside Cotton Mills Co., Simpsonville, has one or two looms in which the spoiled filling is run, and the goods from the looms are classed as seconds and are sold locally.

The next question asked for a normal weekly supply cost per loom for a K-Model, 10-year-old, print cloth loom running 172 picks per minute, 80 hours weekly. H. C. Estes, Beaumont Mfg. Co., Spartanburg, considered 20 cents per loom a pretty good average, but qualified his statement by saying that this depends on the price of supplies, quality of supplies bought, etc. Newton G. Hardie of Gossett Mills, Anderson, considered this low and placed the figure at nearer 40 cents per loom per week.

For 20-harness dobby work, is a 14-inch steel heddle better than a 12-inch heddle? Which is best for 8-harness work? was the next question. It was the consensus of opinion that the 14-inch heddle is more satisfactory when as many as 20 harness are used, but that for 8-harness work the 12-inch heddle will prove satisfactory. According to a report, more 14-inch harness

Mr. Simmons

are being bought for light numbers and for silk. There seems to be more flexibility in the 14-inch heddle and less strain on the warp, with less jerking. Mr. Simmons explained that he uses the 12-inch heddle with satisfactory results, but can see where at times it would be advantageous to have the 14-inch heddle.

Shuttle Eyes

In a discussion of the shuttle eye to be used with 20s spun rayon, it was brought out that though several different types have been tried, none is as satisfactory as the regular shuttle eye used on 40s cotton filling. It was pointed out by one mill man that this is one place where the field is wide open for development, because though the regular cotton shuttle eye operates better than any shuttle eye that he has tried, it still is a long way from being satisfactory. None of the men present changes his shuttle eyes when running spun rayon after running cotton. Mr. Stansell does change the tension in the shuttle for spun rayon and cotton, but does not change the eye.

Once again the old question of kinky filling came up, this time with the assumption that there is not too much twist in the yarn. In other words, what are the weaving causes for kinky filling? Mr. Lockman mentioned a poorly conditioned room, improper heat and humidity, harness not timed correctly, loom picking late, too much power on the loom, and maladjustment of the check strap as being some of the causes. Other members added to these such things as bouncing shuttle, improper groove in shuttle, poorly conditioned filling, and inadequate tension in the shuttle.

Next on the prepared questionnaire was, *What is the cause of a cross twill in a rayon satin cloth?* One reason brought out was improper harness setting, thereby causing tension on the filling. Mr. Parks added that in making any cloth on which he desires a smooth finish, he tries to get as pleasing a cover or hand as possible, which is governed by the proper timing of the loom, the height of the whip-roll, etc., and that to eliminate a cross twill probably more cover should be placed on the fabric. He advised that if the trouble is not general, then it would be well to look for something wrong with the loom, such as a worn cam.

Mr. Simmons added that one harness going lower than the others or the fabric being improperly reeded could cause it.

Quill Replacement

The next question was as follows: *A colony of 500 Draper looms break about 500 quills per month. Is this figure excessive?* Opinion was divided with some contending that 250 quills per month should be about right, and others holding that this figure of 500, or one quill per loom per month, seemed about in line with their own records.

The last question asked which type of leasing reed is best, the front type or the back type. One man stated that he prefers the back type because it is faster and gives the yarn less punishment.

Mill Subjects Discussed at Durham STA Meeting

ABOUT 125 MEN were in attendance at the Eastern Carolina Division of the Southern Textile Association, which convened for the regular fall meeting at the Erwin Cotton Mill Company auditorium, West Durham, N. C., on November 4, 1939. In the absence of James B. Batton, Sr., chairman, the meeting was presided over by W. H. Miley, Jr., superintendent Erwin (N. C.) Mill No. 5.

W. M. McLaurine, secretary-treasurer of the American Cotton Manufacturers Association, Charlotte, spoke on a most timely subject, "Human Relations". He stressed the importance of boosting all along the way to keep those concerned mindful of the fact that their good work is noticed and appreciated.

Drawing Frame Rolls

The first question asked for a comparison of leather, cork and synthetic top rolls with metallic top rolls for evenness, production and breaking strength. This question was divided into three parts.

1. As regards *evenness.* Mr. Miley asked if there was anyone who had changed over from metallic top rolls to leather, cork or synthetic, to which D. E. Long, Oxford (N. C.) Cotton Mills, replied that he believed, from standpoint of evenness, that the leather or cork rolls make more even sliver than a metallic roll, with fewer mechanical difficulties encountered. P. B. Parks, Jr., Erwin (N. C.) Cotton Mills Co., No. 3, further emphasized the discussion by making a drawing of a top roll of cork or leather on a blackboard placed before the group. He then asked the essential difference between the metallic and this type of roll, whereupon it was pointed out that the metallic roll has a collar upon which to ride, and this collar rides on the bottom roll. It was agreed upon that when the top roll rides on top the driving force is bound to come from the working surface, that is from the collar being transferred from the bottom steel roll or from the flutes. Mr. Parks explained that these top flutes fit into flutes on the bottom roll, making it impossible for the fluted top roll to slip. When these two rolls go together they have to mesh. He went on to say that he believes they actually get drive from the flutes and that the collar keeps the two rolls separated. When rolls are driven so fast that the flutes won't mesh very well, they begin jumping up and down and in this way become worn because these rolls are riding on the working surface of the leather, cork or synthetic product. To conclude his remarks on this discussion, Mr. Parks stated that it is his belief that synthetic, cork or any other type roll will give more even work than metallic rolls provided the sliver does not get too heavy, adding that if the sliver is allowed to get too heavy slippage may occur.

W. H. Miley, Jr., who led the Durham STA discussions . . . .

P. B. Parks, Sr., manager Erwin Mills Nos. 1, 4 and 6, Durham, N. C., gave his experience with all plants using high draft drawing frames, stating that one frame in one of the plants was equipped with all cork top rolls. He finds no difference in these machines as regards breaking strength and evenness. However, it is noticeable that on cold mornings the roll is found to be lumpy and this will show up on the slubber. In such cases cork tops are put on the rolls and the lumpiness is immediately cleared up.

Tension on Web

Regarding the tension on the web, M. R. Harden, Erwin Mill No. 4, Durham, N. C., suggested that it should be as slack as is practical. It was generally agreed upon that a better tension is obtainable on cork, rather than metallic rolls. The fact was pointed out that if the atmospheric conditions are kept at around 70 degrees F. or above with the humidity around 50 to 55 per cent, the rolls will not be likely to lump.

At this point Mr. Miley asked for someone to give his experience with the synthetic type rolls, whereupon Mr. Long stated that in his trial of this type he finds that the chances for good work are based absolutely on the atmospheric and general conditions, so that the results are most uncertain. B. F. Aiken, Erwin (N. C.) Mills, contributed the fact that in the synthetic type of rolls the short fibers cause eyebrows to form on the clearers and that after buffing the rolls are smaller and cause slippage or bad drafting.

2. As regards *production.* J. L. James, Erwin Mill No. 1, Durham, N. C., began the discussion of this part of the first question by saying that there is not much difference in amount of production, the speed on either type of roll being practically the same, running a high draft of 12.37, using a 1⅛-inch fluted roll and 1⅛-inch non-fluted roll, with temperature of from 70 to 75 degrees and relative humidity of 55 per cent. By adding extra weight to top rolls he has eliminated slipping and obtained more even sliver.

A. R. Marley, Erwin Mill No. 6, Durham, N. C., was asked to give his results from sliver tests that he has run. He stated that he has made extensive sliver tests from one frame with all cork top rolls and one frame with two back rolls metallic and the first three cork. The tests from all cork top rolls showed more unevenness than the ones from the frames having the two back rolls metallic and the three front rolls cork. He added that there was very little difference in the breaking strength of the yarns from these two types of roll set-ups.

3. As regards *breaking strength.* It was generally observed in the preceding discussions that the breaking strength is about the same in all types.

Number of Sliver Ends

Mr. Aiken stated that his experience running 4 ends up on drawing frames was not very satisfactory as he found the draft too short and the work uneven. He finds that six ends give a better breaking strength and the draft is in better proportion. Mr. McDowell, Rosemary Mills, Roanoke Rapids, N. C., contributed to this discussion the fact that running six ends is better than running five or seven. He believes that the weight should be taken off the sliver rather than taking out one end, and that if a heavier sliver is desired the weight of the card sliver should be increased. Mr. McGee of Roanoke Rapids offered

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Reported exclusively for "Cotton" by H. Grady Lyon, Erwin Cotton Mills Company, Durham, N. C.

the suggestion that by having six ends on back process and seven ends on front process his breaking strength has been increased, but the speed was reduced from 320 to 210 r.p.m.

Cleaning Long Draft Frames

C. L. Carrow, Erwin Mill No. 1, Durham, N. C., submitted the complete cleaning schedule for long draft work given on this page.

Mr. Carrow added that overhead cleaning is done after each eight hours, using mops for shafts and pulleys, and the ceiling is blown out with an air pipe. The windows are mopped out due to an excessive accumulation of lint caused by the circulating air system in the department. Mr. Harden mentioned the fact that a little twisted wire brush of about ½-inch diameter is used to clean between the cradle and the rolls. There are about two inches of bristle on this brush. When this is run between cradle and rolls it picks up a lot of accumulated lint and foreign matter. J. S. McBroom, Erwin Mill No. 1, Durham, N. C., stated that the overhead cleaners over the spinning frames keep the flying lint blown from the creels and guides. The cleaners make their rounds about every seven minutes. The bottom of the skewer sticks are picked once per week by hand.

Slashing Discussion

R. G. Caldwell, Erwin (N. C.) Mills, opened this discussion by stating that he has steam pressure of about 4½ pounds on the cylinder and speed of 23 yards per minute. He has found that if the slasher is run too fast his yarn will not dress down right. The size of the yarns runs usually from 8s to 14s.

Mr. Hyder of Eno Mills, Hillsboro, N. C., runs beams of about 5,000 ends and a speed of about 28 yards per minute. His slashers are equipped with automatic temperature controls. He keeps the small cylinder around 180 degrees F. and the large one around 190 degrees F. His steam pressure is around 4½ pounds, and as higher speeds are run temperatures are maintained accordingly.

Mr. Harden brought up the question of what the pressure has to do with drying the yarn on the slasher, stating that pressure that is too high will damage the equipment and that pressure has no relation to the slashing of the yarn. It has been observed that some slashers do not have enough pressure to show on the gauge, yet the temperatures on the cans are sufficient to do the drying. The temperature on the surface of the slasher is most important, and this temperature is gauged by the weight of yarn beams that make up the set, i.e. considering the number of ends, weight of yarn, type of size and speed that is run. The temperature may be affected by steam condensating in the line, thus causing the temperature to fall; therefore, the distance the steam is from the room will keep pressure and temperature down if it does condensate.

Mr. McGee of Roanoke Rapids said he devotes most attention to temperature on the cylinders, but noticed that sometimes his steam pressure is around 12 pounds.

The second part of this slashing discussion dealt with methods of doffing the loom beams in preparation for tying-in machine. Mr. Hyder of Hillsboro said that in doffing the slashers at his mill they run two rows of paper tape across the beam and cut between the tapes, then doff out beam, set in new beam and roll warp around it. Then they are ready to start up. This is controlled by slow motion on the start of the beam. Mr. Harden uses the same method except that he uses a stick, which is driven into the groove, and then starts the machine. [See page 153 October COTTON for description of this method]. This gives a smooth start all the way across the beam.

Sidney Green, Eno Mills, Hillsboro, N. C., uses two men on doffing the slashers. One man looks after the friction on the beam, the other takes care of the taping. Then the slasher is brought to a stop and the stick is driven down. This runs the yarn out a little better. Regarding the part of the discussion concerning the positive or gear driven slasher over friction drive, Mr. Harden seemed in favor of friction drive. He has observed that as gear driven sets start great distance is lost in the meshing of the gears; therefore, the head tends to rock. This, of course, gives stretched warp. This can be remedied by having fewer ends or, better still, by taking off gears and using friction.

Reports and Records

In a discussion of controlling imperfections before they become general, Mr. Hyder of Hillsboro stated that there are slips in the cloth room upon which to put the loom number which is in question. These are sent to the weave room and the loom is checked immediately before another mistake is made.

(Editor's Note: The complete story of reports used in controlling seconds in the weave room as given by C. W. Howell of Erwin Cotton Mills appears on page 70.)

Inside Sanitation

Mr. James reported the use of the scrubbing machine to be most satisfactory since it is speedy, therefore saving time, and is easily handled. One man cleans corners and other places that the machine cannot reach. One advantage is that it gets over the floors more often. Mr. Hughes of Erwin, N. C., stated that colored men did go around among the tobacco-chewers cleaning up after them, but in the past few years they have stressed cleanliness to such an extent that everyone seems to be cooperating.

System for Cleaning Super-Draft Speeders

First Shift oils shells and hangs weights Monday morning.

Second Shift drops weights, takes out shells, and wipes arbors Friday night.

Other work on frames is the same on day and night shifts.

1. Wipe guides on every other doff; 2. Pick front rollers once per day (3 frames); 3. Pick top clearers every other doff; 4. Pick front bottom clearers every other doff; 5. Pick back bottom clearers once per day (3 frames); 6. Pick spindles once per day (3 frames); 7. Clean backs twice per week (1½ frames); 8. Clean bottom rolls once per week (1½ frames); 9. Clean top rolls once per week (1½ frames); 10. Clean carriage on every other doff; 11. Wipe breast beam behind flyers once per day (3 frames); 12. Pick flyers before letting down ends to doff; 13. Pick stands once per week (1½ frames); 14. Oil bolsters once per week with spindle oil (1½ frames); 15. Oil bobbin gears once per week with special oil (1½ frames); 16. Clean head and foot once each day; 17. Keep top of spindles clean. Keep bolsters clean.

Speeders are cleaned by overhaulers about every seven weeks (60 eight-hour days).

The frames are leveled and lined once a year.

Clean up around 4 times a year, that is frame heads, gearing, steel rollers and carriages.

Cleaning Schedule for Spinners

1st and 2nd Shift

Run out guides (8:00-11:00-2:30 o'clock); second shift 4:30-8:00-10:30 p. m. Rub off rails (8:30-10:30-2:00 o'clock); second shift 5:00-7:30-10:00 p. m. Brush guide wires (1); Pick top slats (2); Clean back guides (1); Wipe stand (1); Clean lap sticks (2); Clean stands (Monday); Clean under guides (Tuesday); Clean ring rails (Wednesday); Clean roller bar and roving rods (Thursday); Clean heads (Friday); Wipe roping every third week; First shift cleans half of rollers; Second shift cleans half of rollers. Overhaulers clean Spinning Frames once a year. They also set the Spindles once a year. They get over Spinning twice a year, i.e. Steel Rollers, Aprons, checking worn parts, etc.

CURRENT TEXTILE TOPICS

Digestive Period Comes After Sales-Price Spurt

SO FAR under war the textile industry has conducted itself in a way that augurs well for the future. October was a period for digesting the business gobbled down during the extraordinary movement of September. November gave signs that the process had reached a point of assimilation to a good degree, with the market ready for renewed activity under a healthy development of consumer buying in finished merchandise.

With steel mills going at record volume for all time, the heavy-building construction rate notably high after a full year of broad activity, agricultural income rising (through better prices and larger government payments), the domestic economic situation arrived at a recovery level which betokened a lengthy period of good business for textile mills. Thus the building up of inventories in goods on heavy September orders was no indication of burdensome stocks in sight.

Cool weather in many sections after the middle of October was the spur to active consumer purchasing of fall textiles. The long-expected upturn in business of retailers finally burst into full activity. Officials of the cotton textile merchants association, along with other observers, noted that the situation was soundly based upon domestic conditions, with the war merely as a spark touching off the business fireworks.

Industry and War Demands

During the past month, supreme confidence has obtained among the manufacturers of cotton goods, in the face of moderation in sales after the early spurt of the fall. This was natural in view of the fact that buyers covered requirements for several months and that the mills were operating on backlogs that meant capacity production into the new year. Meantime, industrial and war demands took up some of the slack pending new activity in consumer goods.

By the first of November many mills on wide goods had sold up their production of these goods for industrial uses to the end of the year, with users reported to have covered requirements to 50 per cent through the first quarter of 1940. Automobile manufacturers were active buyers, which gave an outlet for accumulated goods in this field. The chemical and rubber trades were broad buyers for new goods production.

Definitely associated with the war, the past month brought into being an unusual volume of business in heavy cotton sheetings and osnaburgs with bag manufacturers. Both the purchase by the British government of 500,000,000 bags of burlap in Calcutta and the rise of prices for that material from 5½ to 11¼ cents for 10½-ounce 40s in a few months were a spur to the demand for competitive cotton fabrics.

World Prices and American

Finished cotton merchandise had a spotty demand through the fall, but on the whole the consumption was good and the converters of gray cloths were urgent for prompt shipment against the substantial orders placed with mills. Thus the price situation for gray goods remained essentially firm. Some recession was made after the rapid September advance, but part of the reaction came from peaks that were really nominal as being realized only for minor lots.

Nobody wants a runaway market for cotton goods. Nevertheless there is sound basis for advances made, as coming from a level of inordinately low prices. While government and consumer agencies have indicated pressure for restraint against rising prices, little has been said about world values. The British government has taken control of many lines of commodities and this country depends upon its attitude toward America for wanted surplus supplies.

If the British, as suggested, want to use surplus wool and cocoa as a means toward securing exchange for the purchase of war materials here they presumably are not likely to accept low prices. We are not making predictions, but merely pointing to the influence of world prices here. Incidentally, importers of merchandise from belligerent countries recently reported costs for various finished lines up 30 to 35 per cent.

A light dress to brighten the mid-winter wardrobe, designed in a rough crepe of acetate rayon.—Eastman.

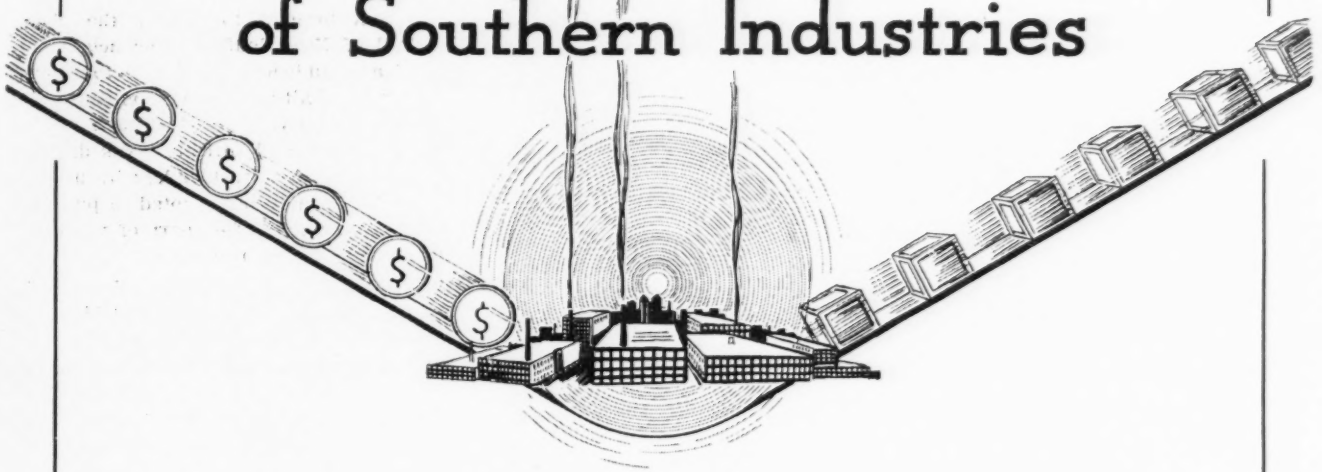
Raw Cotton Trend Upward

Raw cotton bids fair in the next few months to assume a more significant part in the situation for cotton mills. It had an incipient soaring movement in September, which nullified the first advances in cotton goods. Then came a slump, with the heavy movement of the crop as a factor, but other elements in the business situation also militating against a firm trend.

October found the conditions slowly changing. A smaller crop prospect was indicated by the government. The spot price was very slow to move through the month, but futures had a gradual gathering of firmness. The latter reflected the fundamental influence of rapid consumption of the staple by domestic mills. Finally came the government announcement of a new loan plan and spots started upward.

Giving support to predictions of administration farm officials that the outlook under the loan plan was strong, the spot markets soon showed a distinct rising tendency in the face of commodity uncertainty outside this market. It was helped by cotton upturns abroad. The world demand promises to run well ahead of the 1939 American crop. If a few million bales are held under loans, the "free" supply will run that much further behind the consumption this season.

Smoother Operation
for the Wheels of Southern Industries



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Toward More Satisfactory Prices

Allowing that the conditions warrant higher prices for cotton goods and that the levels so far since summer are nothing like excessive, the tendency of spokesmen in the industry is to argue for caution. "Our concern now is not with the maximum height which prices may reach," says Dr. Murchison, president of The Cotton-Textile Institute, "but with the maintenance of satisfactory prices over a long period.

"In the past we have habitually climbed mountain peaks only to fall immediately over precipices. When we emerge from the price valley which we are now leaving, we should like to plant our feet safely upon a broad plateau bounded only by the horizon. The welfare of a mill is not determined by the prices of a week, a month, or even a year. For the industry as a whole, loss periods are created by the excesses of prosperity periods."

New England Mill Situation

CONSERVATISM optimism was apparent at the annual meeting this fall of the National Association of Cotton Manufacturers in Boston. The individual manufacturers, largely from New England, informally reported big orders unfilled and earnings prospects considerably improved, but with wage and cotton price uncertainties still confronted.

Shortly after the meeting Russell T. Fisher, president of the association, said that in granting an injunction against the minimum wage of 32½ cents, the Federal Court in New Orleans in effect stated that low-wage areas existing in the South were exempt from the law. "The continuance of the low-wage scales the law was intended to correct has a direct effect on the wages in the high-wage areas of the North.

"If there is any question on the constitutionality of the Fair Labor Standards Act of 1938, the sooner the Supreme Court rules on it the better for all industry. There should be no uncertainty about a law that represents such a drastic change in one of the fundamental concepts of the Federal Government."

Broad Production Gain

Cotton mills of New England, meantime, had shown a notable increase of activity. The latest figures available report operations at nearly 80 per cent of capacity in September, the peak with the exception of one month since the summer of 1937. Since the government figures for October on cotton consumption were the largest of any month since April of 1937, the mill rate in this district undoubtedly will be shown at a further peak.

Through October and November the mills were operating on heavy backlogs of the September spurt in buying, for the most part. The encouraging development for these mills, chiefly on fine goods, was the evidence that production on a large scale was going rapidly into consumption. Avoidance of inventories for months, previous to the fall, meant that a good consumer purchasing movement demanded rapid delivery of gray goods.

In these circumstances, sellers of cloth through the lull after the first heavy movement remained confident over an early recrudescence of substantial buying. The market, moreover, was not without a fair amount of steady business. Promise of considerable export business, especially with Latin America, was another encouraging feature in the situation.

Wave of Wage Increases

Above and beyond the minimum wages invoked by the Federal law, effective October 24, the mills have acceded to requests of the unions in textile centers of New England for advances based upon higher living costs and improved conditions for the manufacturers since summer. From Maine to Rhode Island, and in other States such as New York, early November brought demands for increases. They ranged up to 20 per cent.

At last accounts, the prevailing rate of increase was seven per cent. The loom fixers' union, AFL, in Utica, N. Y., was asking 20 per cent, as well as a week's vacation annually, but that was not being considered in New England.

Something like 16,000 employees in New Bedford and 14,000 in mills of Fall River led the way in Massachusetts increases, with the smaller centers following. In Maine another nine or ten thousand operatives were involved. Various New Hampshire, Connecticut and Rhode Island plants quickly followed.

Notes on the Mills

Significant of the improving conditions of late, the Nashawena Mills of New Bedford recently declared a dividend of 25 cents, the first payment for more than 11 years. The Nonquitt Mills of the same city, with a final dividend of 50 cents, brought its dividends of 1939 to $3, against $2.25 in 1938. The Newmarket Mfg. Co. of Lowell paid $1.50 in November, against 75 cents for previous quarters.

Col. G. Edward Buxton has resigned as president and director of the five textile mills in Maine controlled by New England Industries, Inc. Weston Howland has resigned as executive vice-president. Both were nearly eight years with the mills, which are the Edwards, Androscoggin, Hill, Bates and York. After early February, a new sales organization under Howard Bishop will distribute the products of these units.

Suit brought to enjoin the Soule Mill of New Bedford from acquisition of any additional mill and to compel return of all salaries or bonuses in excess of fair value for services rendered by officers and directors was dropped before trial. Stockholders by a large majority last March voted to purchase the Neild mill after part of the Soule plant had been burned.

Gradual restoration of mills in the once great Amoskeag plant at Manchester, N. H., is taking place. Many of the small enterprises now operating are textile units. It is estimated that 5,000 workers will be employed in the mills by the middle of next year.

First Strike in 112 Years

Exeter (N. H.) Manufacturing Company recently has had the first strike in its history of 112 years. About 110 employees in the finishing department of this company walked out.

Unofficially it was stated that these workers wanted a wage increase of 15 per cent. Hervey Kent, treasurer, posted a notice that an increase of 7 per cent would be paid, retroactive to November 6. He explained that the company made no cut when other mills reduced wages in 1938.

Workers' Pet Peeves

"I suppose I could get ahead a lot faster around here, myself," a worker complained, "if I wanted to play up to the boss and kiss his foot every time he came around. He's got two or three favorites that can do anything they want and it's OK with him. But just let anybody outside of the chosen few make one misstep and he lands on them like a thousand of brick.

"He thinks he is getting a lot out of these favorites of his because he thinks they blab to him everything that happens around the department. Maybe he does get something on some of us once in a while that way, but he loses a lot more than he gains by playing favorites. We'd all respect him a lot more and go down the line for him if he was absolutely impartial and gave us all an even break.—"*Management Information*", *Elliott Service Co., Inc.*

IT'S HERE IN BLACK AND WHITE, CHIEF! Our tests in the No.2 mill show that we've cut our roll covering costs 50%
THAT'S PROOF ENOUGH FOR ME, BILL. From now on you can start equipping all our frames with Armstrong's Cork Cots

DAY after day, from mill executives the country over, we receive figures on roll covering costs. And these figures prove that mills are saving 50% or more by switching to Armstrong's Extra Cushion Seamless Cork Cots.

Let's analyze the savings you get with Armstrong's Cork Cots. To begin with, these cots cost no more than other types of roll coverings. Then your money-saving starts right off with quicker, cheaper assembly. You'll find, too, that cork lasts longer because it's tougher—and these cots can be rebuffed *three or four times*. The cost of rebuffing is only about half a cent a roll.

A saving in roll covering costs, in itself, would be reason enough for switching to Armstrong's Cork Cots. But you are assured, in addition, of producing better yarn. Cork's higher coefficient of friction means a stronger, more uniform product. It also means better running work. For with cork you get fewer top roll laps, less end breakage, less clearer waste—and you practically eliminate eyebrow trouble.

Yes, you profit two ways when you install cork cots. That's why more than 7,000,000 active spindles today are running on Armstrong's Seamless Cork Cots . . . the modern roll covering. Let an Armstrong representative show you actual production figures of mills spinning your range of numbers on cork. Or write Armstrong Cork Company, 923 Arch Street, Lancaster, Pennsylvania.

ARMSTRONG'S *Extra Cushion* SEAMLESS CORK COTS

CORK PRODUCTS SINCE 1860

"THE SITUATION" as Seen Across an Executive's Desk

November 18, 1939

THE PAST month in the textile industry has established unusual records on production schedules. In some sections of the industry production for the past four weeks was the largest of any single period since records were first kept. Despite that, shipments exceeded production and as a result mills find a decrease in inventory that portends only one thing—rising prices.

Some sections of the industry have been required to put on three shifts in order to handle the volume demand Others are under pressure but hold out that business over a long pull would not justify more than two-shift production and they wish to steer clear of a possible social problem which might be entailed upon the ending of any emergency factor which has stimulated business.

Evils of Third Shift

It is ridiculous, however, for mills to be placed in the position which buyers should like them to occupy; i.e., an automatic addition of the third shift when they need early and quantity delivery, and the ditching of that same third shift when volume is not needed. It is an extremely selfish viewpoint and an impossible one for the mills; particularly impossible would be the situation in which that third shift—good, hard working people—should find themselves if the buyers had their way. This third shift could never depend upon steady employment, but would live well one season and lean another, or perhaps not live at all.

To those people who insist that mills should be willing to change operation schedules at will we should point out strongly that a mill is operated by people and is not a machine which can be started and stopped on a moment's notice. But despite this argument the truth is actually here—that it is a seller's market again, and the buyers are simply griping.

Surveying the entire cotton textile field, the Department of Agriculture reported that mill sales of unfinished cotton cloth and yarn again were less than mill output, but no concern was expressed over the markets' ability to absorb the surplus.

Continuation of industrial production at a high level and the expanding retail sales were seen as favorable signs for the future of the industry.

Throughout late October domestic mill activity increased further, the department stated, pointing out that the New York *Times'* seasonally adjusted index of mill activity was about 139 per cent of estimated normal for the week ended October 28, against 136 (revised) a week earlier and 116 per cent a year ago.

Mill sales of cloth and yarn were on the whole moderate but increasing prices of burlap resulted in increased buying by bag manufacturers of coarse cotton goods (osnaburg and sheetings).

Prices Not Up to Volume

Cloth and yarn prices were mostly unchanged and mill margins or the difference between the price of cotton and its cloth equivalent continued comparatively wide. The average mill margins in October for 17 constructions of coarse and medium cotton clothes was 15.8 cents, (preliminary), against 14.6 cents in September, and 10.9 cents in October, 1938. The average margin for October during the 10-year period 1928-37 was 13.3 cents.

The increased operation schedules which have been enforced for the last two months have given employment to more than 7,000 additional workers in the textile industry. About 200,000 idle spindles have been started up, and thus the textile industry is doing its part toward a general national recovery. And yet, a comparison of the market for leading print cloth and broadcloth constructions of July 1, 1933, with October 21, 1939, shows much lower prices per yard today than back during the dark days immediately following the closing of all our banks. Representative of these comparisons are the following:

		July 1, 1933	Oct. 21 1939
38½"	64x60-5.35	6⅜c	5½c
39"	38x72-4.75	7¾c	6¼c
39"	80x80-4.00	8⅞c	7¼c
37"	100x60-4.10 (broadcloth)	8¾c	7½c

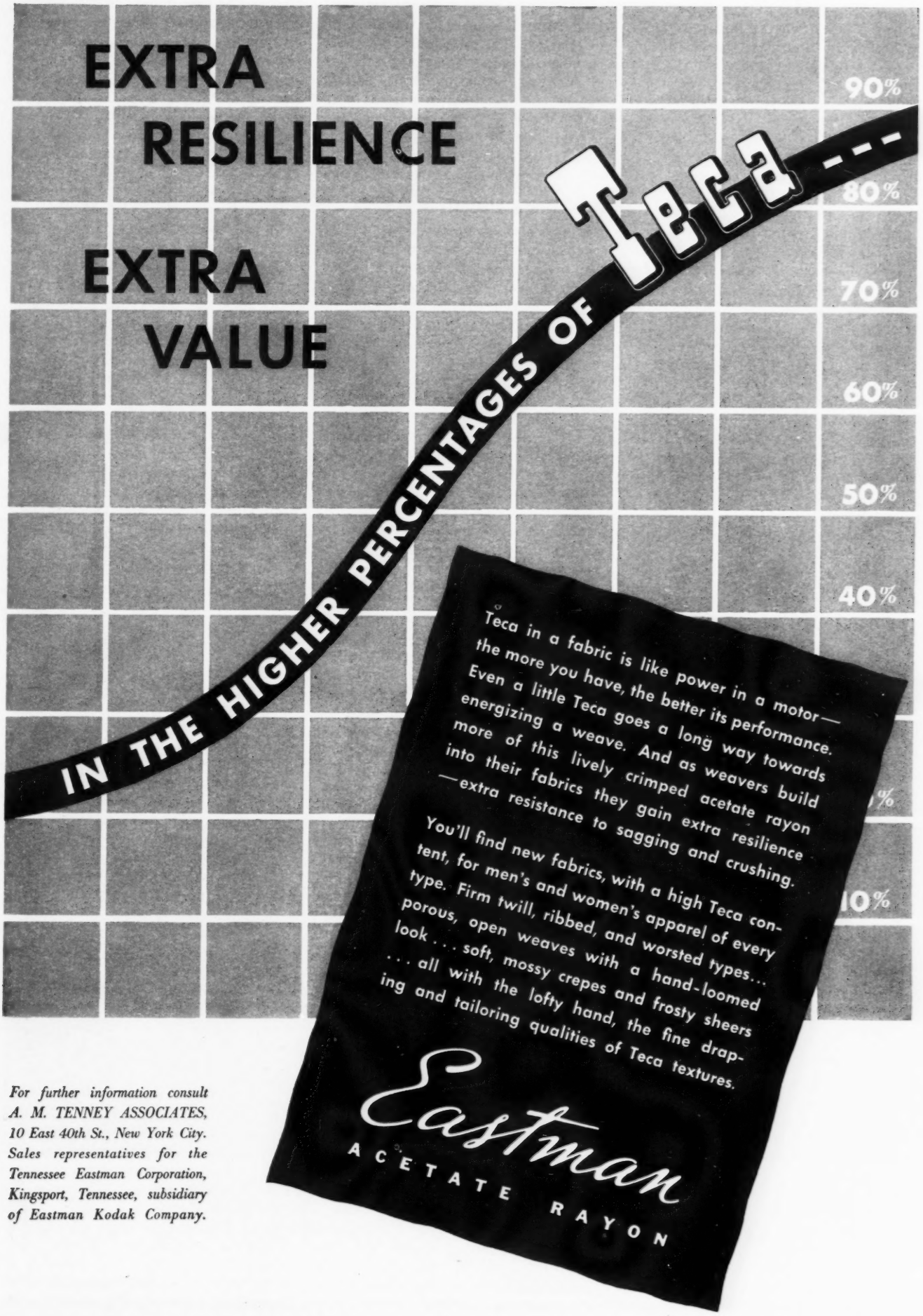
Not until prices compete in strength with production can the textile industry hope to gain any permanent results from increased volume. Too long have mills run and sold their products at a break-even or less-than-cost figure. Why in the name of common sense they can't ask enough to justify staying in business over a period of years is something we can't understand. It is impossible to believe that the bottom of the barrel would not some day be reached if all goes out and little comes in.

One of the interesting developments of the past month has been heavy purchases of osnaburgs and similar heavy fabrics intended for burlap substitutes since England entered the burlap market in India expecting to use that fabric for sand-bags. This may mean a boost for wrapping cotton bales more extensively in cotton bagging as it may produce either excessive prices on jute or a shortage. Of course this is a direct result of the European situation.

The Cotton Loan

In the raw cotton field the recent announcement of another Government loan was a shock and surprise as it had been thought that the export subsidy program wuold eliminate need for a loan this year. It all seems very useless as ¾ of the crop has already been ginned and sold. However, some experts on raw cotton feel that prices are due for another advance because of the loan, possibly 10-cent cotton. They say that the 1939 loan provides $2.00 to $4.50 per bale more to producers than a year ago since it provides for allowances for net weight and location at ports or mill centers. For instance, as much as 9.20 cents may be obtained through the loan on Middling ⅞-inch in the Carolinas or at western ports. It is felt that on-

Shirt and slacks in a worsted-like Teca cloth of crimped acetate rayon, comfortable and crush-resistant.—Eastman.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70%
60%
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Teca in a fabric is like power in a motor—the more you have, the better its performance. Even a little Teca goes a long way towards energizing a weave. And as weavers build more of this lively crimped acetate rayon into their fabrics they gain extra resilience—extra resistance to sagging and crushing.
You'll find new fabrics, with a high Teca content, for men's and women's apparel of every type. Firm twill, ribbed, and worsted types... porous, open weaves with a hand-loomed look . . . soft, mossy crepes and frosty sheers . . . all with the lofty hand, the fine draping and tailoring qualities of Teca textures.
Eastman
ACETATE RAYON

For further information consult A. M. TENNEY ASSOCIATES, 10 East 40th St., New York City. Sales representatives for the Tennessee Eastman Corporation, Kingsport, Tennessee, subsidiary of Eastman Kodak Company.

ly between 3 to 5 million bales could possibly be left in the farmer's hands. Warehousemen say that grade differences and classifications will be less favorable this year as the Government will require grade certification by classers regularly in the employ of the Department of Agriculture. It is thought that this year 8½ million bales will be consumed on present production schedule. Since 11½ million bales seems to be the crop and a possible 4 million bales may be exported, there seems to be little danger of a carry-over. On the other hand, there is every indication that this time there is a shortage of approximately 700,000 or 800,000 bales. It is understood that an available supply in growers' and merchants' hands had been exhausted before the current crop was harvested. And, that if this shortage prevails a much higher market will result as the loan will have to be opened in order to supply the mills with enough cotton to run on during spring and summer months.

Washington is still going through the Wage-Hour shake-up as Colonel Philip Fleming of the Army Engineers has just arrived to take over his new duties as head of the Wage-Hour Administration. Wholesale resignations have come from the previous Administrator's office, but it seems now that Fleming himself will take charge of enforcement, relegating Major Fletcher, who is one of the few original staff members left, to carry on nation-wide pep talks about the Wage-Hour Bill. Industry is holding its breath until it can learn Colonel Fleming's attitude.

Learners Permitted

One good break for the textile industry has come with the announcement that learners may be employed at the minimum wage of 25 cents for a 6 weeks' period upon the application of a mill to the Wage-Hour Division that they wish to employ learners amounting to 3 per cent of their employees. This regulation was made on the part of the Wage-Hour Administration upon application by The Cotton-Textile Institute and others. The industry, including the Tufted-Bedspread Group which was in such desperate need for learners, has agreed to accept the ruling as handed down.

A considerable hullabaloo was raised in New England upon the announcement of the injunctions of some small southern mills and manufacturers up there stated that under the 32½c minimum the Southern states had hourly differentials in costs of 4 cents to 6 cents due to geographical and climatic conditions, and that if the injunction was allowed the New England mills would be terribly penalized. Despite this fact however, wage increases were offered by New Bedford mills shortly after, following demands on the part of employees. A compromise between 5 and 10 per cent was effected.

In the South no general move has been made for increasing wages over and above the necessary legal requirement. Manufacturers argue that mills have made no profit for years, that they must have some back-log upon which to draw in the future, and that an additional increase today would destroy their chances for attaining any such position that if employees desired continued employment they should recognize this fact. Backing up their statements they point out that cotton mill workers' incomes are as good or better today than they were during the boom times of 1937, but that the cost of living according to the National Industrial Conference Board Index is 3 per cent lower today than it was two years ago.

Let's Help with the Census

WHAT HAS BEEN the production of the textile industry during the last year? How many yards of goods and pounds of yarn have been sold? What products have had the greatest sales? To what markets have most of the goods gone? Has business increased since 1937 and how much? Has each manufacturer had his share of business?

These questions and many more of vital concern to marketing men, sales staffs and those responsible for production and costs will be answered by the Censuses of Business and of Manufacturers to be conducted as a part of the Sixteenth Decennial Census in 1940. The answers will be valuable not only because they will show the progress of the industry during the last two years, but because they will point the way to future expansion and sales trends.

The 1940 enumeration of manufactures and business will be the most comprehensive ever undertaken. This is true also of the other compilations to be made next year. These will include the Censuses of Population, Agriculture, Employment and Income, Mines and Quarries, Drainage and Irrigation, and of Housing. The Housing Census will be taken for the first time next year.

For 1937, Census figures show that the value of cotton goods produced and receipts for contract work was well over 2¼ billion dollars—an increase of 23.6 per cent over that for 1935 and more than 41 per cent over that for 1933. What will the 1939 figures show?

Included in the 1939 compilation will be the amount of goods made and sold by each sub-division of the industry in each state—woven goods, narrow fabrics, yarn and thread, fish nets and seines. Then too, there will be a break down of specific goods under each of these classifications—by pounds, square yards and value.

The Census of Manufactures also will give officials of the industry an insight into the integration of the textile industry. It will show comparative figures, by pounds or other units of measurement, of the various goods made for sale and made in the plants for their own use. Census figures for 1937 show that more than 2½ billion pounds of cotton yarns, for example, were made and used in the plants. This was about five times as much as was made and sold in the open market that year. The 1939 figures may show a great change in the proportion of goods sold. Sales executives can use these figures to compare their own sales allocation with that of the average manufactures.

Production officials can measure their own company's performance by using as a yardstick, the data to be made available on the costs of manufacture, equipment used and purchased during the year, electric energy and fuel consumed.

The Census of Business will show what the sales of manufacturers have been this year to wholesalers, the sales of wholesalers and retailers, what markets have proved to be the most profitable, and through what channels most of the sales were made. These data will be immensely valuable to sales and marketing staffs in studying their markets and distribution channels, and determining future policies.

Since timeliness of the data collected is all-important to business men, the Census Bureau is speeding its compilation. Some 12,000 enumerators will be in the field January 2, calling on manufacturers and distributors, and will complete their work in four months. In April an additional 120,000 enumerators will start work on the other compilations. The great bulk of the information will be ready for distribution before the end of 1940.

As in all census undertakings, the individual answers will be kept confidential.

Co-operation by individual plants will expedite the work.

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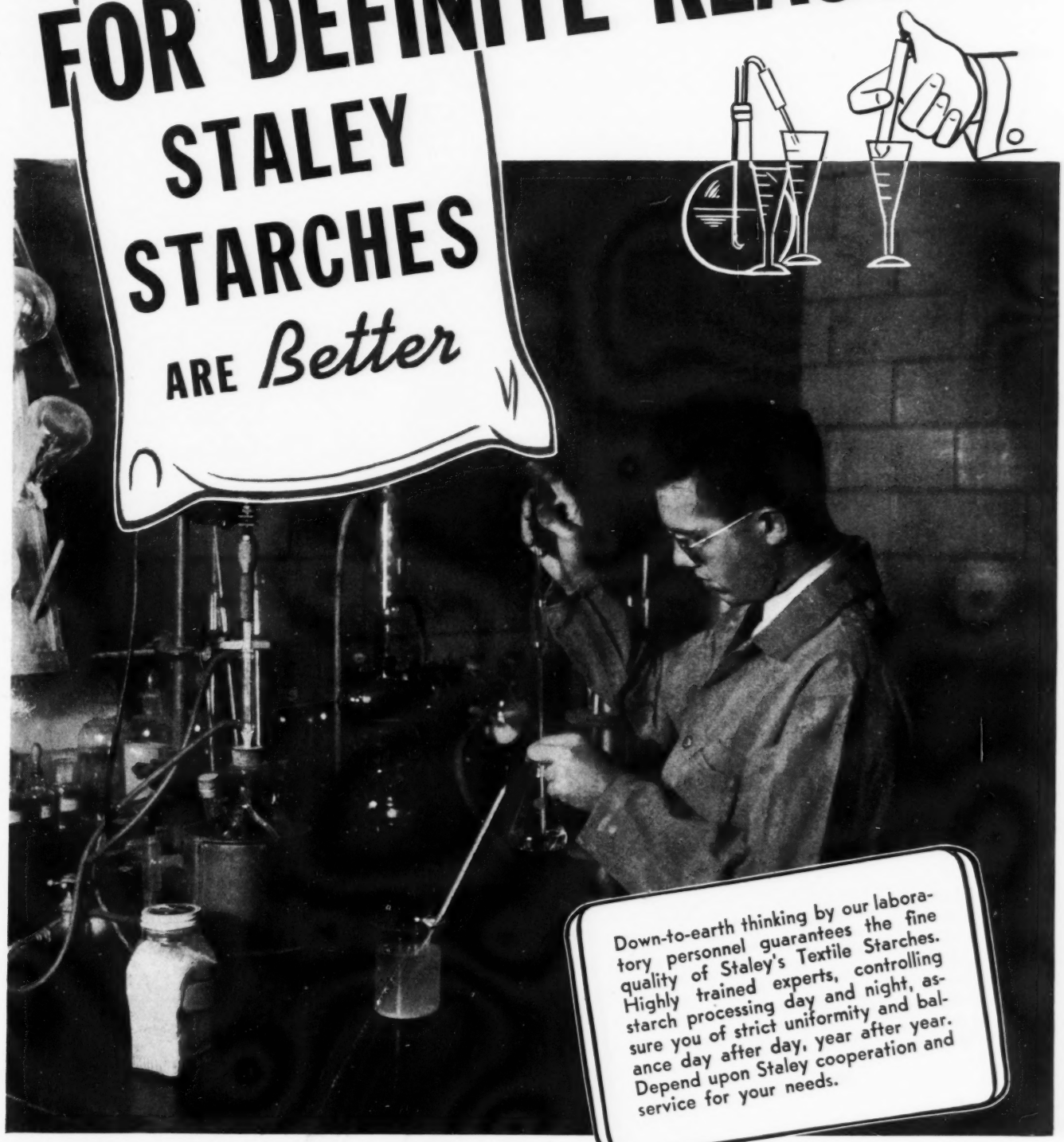

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Comment on the Cotton Market

New Orleans, November 18, 1939

THE PLACING of a government loan on the United States cotton crop of 1939, large domestic consumption of the staple, strong goods markets, a good demand for spots and the continuance of liberal exports of the raw material, made for a somewhat more active and higher market the past month.

Returns to the Government, as of November 1, point to a production of 11,845,000 bales versus 11,928,000 on October 1 and last year's crop of 11,943,000 bales. The indicated yield per acre was placed at 234.1 pounds compared with 236.7 the previous month and 235.6 last year.

The Census Bureau reported ginnings to November 1 as 10,083,000 bales versus 10,125,000 ginned to the corresponding date last year.

With prospects for much larger than last season's exports this season, and with domestic consumption of the staple promising to be very large this season, there is the possibility of a scarcity of "free" cotton this season, perhaps by next spring, barring possible developments that might check the present encouraging export movement. From August 1 to November 17, shipments from the United States totaled 2,121,000 bales versus 1,459,000 to same date last season, and domestic consumption for the first three months of this season totaled 1,940,000 bales against 1,636,000 for the corresponding time last season.

In the matter of exports several countries have already taken more of American cotton than they imported during the whole of last season, Poland and Germany being among the exceptions, due to their inability to procure American raw cotton in quantity owing to the war.

From spot centers information is to the effect that the demand is good, having improved in most sections. Domestic spinners continue to buy and it is said that the foreign demand would be better if more ocean freight room was available. The market holds firm in consequence. The local certificated stock is comparatively light.(*) The Government is credited with having reported 3,700,000 bales of American cotton and cotton products were sold on subsidy, but thus far this season 2,121,000 bales have been exported, which is encouraging as to the future as regards future shipments. The sales were made under the Government's export subsidy program. Exporters receive a bounty of 1½ cents per pound on export of raw cotton and equivalent payment on exports of cotton products under this program.

Late press advices from New York are to the effect that business is seasoning the nation's Thanksgiving this year with touches of old-fashioned prosperity. Payrolls and dividend checks have fattened on the best autumn pickings industry has seen in a decade.

Merchants from coast to coast are preparing for a big Christmas shopping season. The trend was still moving forward, although at a slower pace than in October and early November.

Business Outlook for 1940

Leaders of the construction industry in Washington declared lately that business wants no war boom but expects 1940 to bring continued industrial and commercial improvement.

This was the theme running through addresses at a constructive conference at the Chamber of the United States.

Much, however, will depend upon the duration of the European war. If the conflict lasts for a long time industry, especially the "war babies" will likely continue to forge ahead. On the other hand, should the trouble come to an early end there may be some reaction, especially in war industries, but the improvement in general business appears to be on what looks like a solid foundation, and when the war comes to a close there will likely be an urgent demand for American products, particularly for food and clothing, which would probably serve to sustain, perhaps cause, a further expansion in general business on this side of the Atlantic. Therefore, no matter which way the wind blows, American business will likely continue to prosper providing the United States keeps out of the war.

CENSUS REPORT, NOVEMBER 14, 1939

United States—	Bales This Season	Last Season
Consumption of lint, October, in Cotton-Growing States	580,000	460,000
Consumption of lint, October, in New England States	86,000	68,000
Consumption of lint, October, in All Other States	21,000	16,000
Consumption of lint, October, in United States	687,000	544,000
Consumption of lint, 3 months, in Cotton-Growing States	1,646,000	1,387,000
Consumption of lint, 3 months, in New England	237,000	202,000
Consumption of lint, 3 months, in all Other States	57,000	47,000
Consumption of lint, 3 months, in United States	1,940,000	1,636,000
Mill stocks, October 31	1,465,000	1,509,000
Stocks in public storage and warehouses, Oct. 31	15,468,000	15,308,000
Stocks in mills, public storage and warehouses, Oct. 31	16,933,000	16,817,000
Stocks in mills, public storage and warehouses, Sept. 30	15,047,000	14,141,000
Active spindles during October in Cotton-Growing States	16,964,000	16,915,000
Active spindles during October in New England States	5,078,000	4,595,000
Active spindles during October in All Other States	617,000	603,000
Active spindles during October in United States	22,659,000	22,113,000
Active spindles during September in United States	22,232,000	22,183,000

AMERICAN COTTON

August 1 to November 17—	Bales This Season	Last Season
Brought into sight (marketed)	8,123,000	7,475,000
Exports from the United States, including Canada	2,121,000	1,459,000
Spinners' takings, world	(*)	4,225,000

*Figures on this (*) and the world's visible supply of cotton not available because of war conditions.

Textile Publications

The Bristol Company Mill Supply Division, Bristol, Conn. New catalog giving the reasons why the company's socket setscrews and capscrews set faster, easier and tighter. Gives features of multiple spline socket; contains prices and complete screw product specifications.

Bijur Lubricating Corporation, Long Island City, N. Y. Pocket-sized primer on automatic lubrication (Bulletin J). Serves as the quick reference on automatic centralized pressure-lubrication systems.

South Bend Lathe Works, South Bend, Indiana. New 112-page catalog, said to be the largest and most complete lathe catalog ever published. Profusely illustrated.

The Lunkenheimer Company, Cincinnati, Ohio. Catalog 78 illustrating and describing the complete line of bronze, iron and steel valves, boiler mountings, lubricating devices, oil and grease cups, whistles, cocks, fittings, etc.

Cochrane Corporation, Philadelphia, Pa. Unique literature outlining the company appliances and how they have made savings for users.

National Carbon Company, Inc., Carbon Sales Division, Cleveland, Ohio. Literature descriptive of new developments in carbon, graphite and "Karbate" pipe and fittings.

International Filter Company, 325 West 25th Place, Chicago, Ill. "Water Treatment in the Textile Industry", which discusses methods and equipment for the conditioning of water to meet textile plant requirements.

Rockwood Sprinkler Company, 38 Harlow St., Worcester, Mass. New circular featuring Dualsteel unions, standard unions with two Molybdenum steel seats and the malleable Vulcan union.

The DeVilbiss Company, Toledo, Ohio. Catalog covering the extensive line of automotive, portable and specialty equipment. Serves as market guide and trade reference handbook.

The Star Porcelain Company, 101 Muirhead Ave., Trenton, N. J. New 12-page booklet, which is a survey of technical characteristics of molded ceramic products. Valuable as reference to all users of refractory, insulating and decorative porcelains, where electricity, heat, moisture, chemicals or weathering agents are encountered.

Toledo Scale Company, Toledo, Ohio. Brochure advising how scales cope with the modern weighing requirements of the textile industry. Illustrates the different types of scales used and the purposes to which they are applied in the industry.

C. J. Tagliabue Mfg. Co., Park & Nostrand Aves., Brooklyn, N. Y. New industrial thermometer Catalog No. 1125C containing 24 pages of conveniently arranged listings of the complete line of TAG industrial thermometers.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa. A new 59-page "quick selector" catalog, designed to help the user of electrical apparatus in selecting the right equipment for a motor or lighting circuit.

Foxboro Company, Foxboro, Mass. A booklet, "Foxboro and Foxboro", an informal presentation of the history and achievements of a small New England town and its industry, typical of many such thriving communities in the United States which have helped to strengthen the national heritage of free enterprise.

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Textile Book Reviews

"Finishing Materials"

The second edition of *Finishing Materials*, by J. Andrew Clark, has recently been published by the W. R. C. Smith Publishing Company, 1020 Grant Building, Atlanta, Ga., publishers of the magazine "COTTON (Serving the Textile Industries)".

Essentially *Finishing Materials* is a study of the basic raw materials used in the finishing of cotton piece goods with the articles formerly published in COTTON being taken bodily from the magazine. It serves as an ideal reference book for the library of any mill having finishing operations, and will acquaint the mills having their products finished outside with the problems involved in finishing.

This second edition, attractively bound, includes about 50 additional pages that were not contained in the first edition, the supply of which was rapidly taken by the industry. Also, the chapters appearing in the first edition have been revised and brought up-to-date.

Chapter headings include, water, softeners, starches, gums and dextrines and their application, fillers, weighting and antiseptic materials, tinting materials, glues and gelatines, rosins and synthetic resins, enzymes, sulphonated fatty alcohols, permanent finishes, kier loading and boiling for the chlorine bleach, and contains a description of mercerization and its place in relation to other processes. A final chapter includes a study of the functions of the laboratory in a finishing plant.

The author, J. Andrew Clark, formerly chief chemist of the Dutchess Bleachery, Inc., Wappingers Falls, N. Y., is a recognized authority on finishing subjects.

Finishing Materials and its contents is a fair sample of the type of information published regularly in COTTON, and is available only in conjunction with a new subscription or an extension of a present subscription to COTTON, at $3.00 for three years.

◆

Book on Power Transmission

The American Leather Belting Association, 100 Gold St., New York City, have published an interesting book entitled *Automatic Tension Control Short-Center Pivoted-Motor Leather Belt Drives*. Forty-six manufacturers of leather belting and motor bases have cooperated to produce this data book so that these drives can be selected and priced quickly. The book contains comparative tests of the various types of drives. Information contained therein should prove helpful to textile engineers. Copies may be secured by addressing nearest leather belting company, or any of the manufacturers of pivoted motor bases, or the Association.

◆

1939 ASTM Standards on Textile Materials

All of the specifications, tolerances, tests and definitions developed by the American Society for Testing Materials through the work of Committee D-13 on Textile Materials are included in this 1939 textile compilation. Following nine general standards cover textile machines, identification and determination of cotton fibers, general tests on woven fabrics, knit goods, etc., there are three standards covering asbestos roving, yarns and tape. The section on cotton is one of the major portions of the book with 21 items included involving test methods for shrinkage, fastness to washing, general methods for testing cotton fiber properties, and cotton yarns and threads. Other specifications and tests cover hose and belt ducks, numbered ducks, light and medium weight fabrics, and cotton goods for rubber and pyroxylin coating. Other specifications cover cotton sheeting, terry toweling, tubular sleeving and braids, tire fabrics and tire cord and Holland cloth.

There are two items covering jute yarn and Cuban sugar bags followed by seven pertaining to rayon which include test methods for continuous filament yarns, rayon staple, spun yarns and threads, strength of woven fabrics when wet, fastness to washing, shrinkage, and yarn slippage of silk and rayon fabrics.

Another valuable part of this textile pamphlet sponsored by Committee D-13 is the abstracts of papers presented at committee meetings. In the current issue there are five included in the Symposium on Spun Rayon and three more are papers presented at the Twenty-Fifth Anniversary Meeting of the committee.

Appended to the manual are nine sections covering the following: photomicrographs of common textiles fibers, yarn number conversion table, psychrometric table for relative humidity, and a glossary of terms relating to textile materials. Five proposed methods published for information and comment pertain to correction of breaking strength to standard regain, test for accelerated aging of textiles, quantitative determination of Tussah silk in mixtures with other fibers, quantitative analysis of textiles, composed of wool and lanital and test for shrinkage of grease wool.

Copies of this 320-page publication can be obtained from A.S.T.M. Headquarters, 260 S. Broad St., Philadelphia, at $2.00 per copy in heavy paper cover.

◆

Davison's "Knit Goods Trade"

Davison Publishing Company, 201 East Ridgewood Ave., Ridgewood, New Jersey, has published the new 49th edition of the *Knit Goods Trades*, covering all knitting yarn spinners, knit goods manufacturers, agents, New York offices, wholesalers, chain stores, department stores, and yarn dealers, pertaining to the knit goods trades. The deluxe office edition consisting of 800 pages sells for $6.00 and the thin paper handy size for $5.00.

◆

"How to Buy, Sell and Burn Coal"

Thomas A. Marsh, 5625 Kenwood Ave., Chicago, Ill., has written and published a 97-page book entitled *How to Buy, Sell and Burn Coal*. Covered in the book are methods of selecting coal for manufacturing plants, cutting fuel bills, stopping smoke, increasing steam output, etc. One section is a complete schematic analysis of causes and remedies of scores of fuel burning difficulties. Single copies $1.00, 10 to 24 copies 90 cents, 25 or more copies 80 cents, including U. S. postage.

◆

Gallant Wins Westinghouse Order of Merit

Wade M. Gallant, manager of the Raleigh, N. C., office of Westinghouse Electric & Manufacturing Company, was voted the highly prized Westinghouse Order of Merit by the company's board of directors on September 27. The actual award was made on October 31 by Ralph Kelly, vice-president in charge of sales of the company, and Thomas Fuller, district manager, at a special gathering of fellow employees at the southeastern district headquarters in Atlanta.

Mr. Gallant joined the Westinghouse company in 1908 as an apprentice in the Newark plant. In 1910 he was transferred from East Pittsburgh to the Westinghouse offices in Charlotte. Since that time he has been serving the industry in eastern North Carolina, and it is for his exceptional work in this one section that Mr. Gallant received this very significant award.

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When YOUR Life Is Involved This Knowledge May Cost $10,000. When the Life of LEATHER COTS Is Involved It's YOURS FOR THE ASKING

Because innate skill and rich experience have equipped him to cope with ANY emergency, the "big" surgeon can command operating fees as high as $10,000.

Having more than 100 years of background in the manufacture of roller leather, we flatter ourselves that our specialized knowledge of this subject is equivalent to the "big" surgeon's knowledge in his chosen field. Yet our recommendations on how to get maximum life from your leather roll covering are yours merely for the asking.

We make no charge for this service, because we are manufacturers, not professional men, and our sole interest is to make GILLEATHER perform as we know it CAN perform.

This confidence is well founded, as for instance in the case where a mill reduced its roller shop crew 2/3 by using the kind and grade of GILLEATHER that we recommended.

Let GILLEATHER solve YOUR roller covering puzzles. It will pay big dividends.

GILL LEATHER COMPANY, SALEM, MASS.

SHEEP and CALF SKIN
GILLEATHER *for* **TOP ROLLS**

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Greenville, S. C. ..... Ralph Gossett
Griffin, Ga. ..... Belton C. Plowden

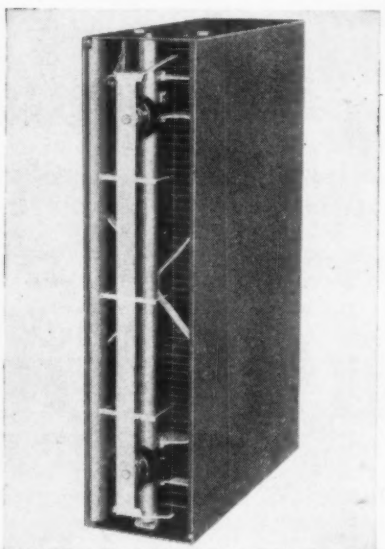
NEW EQUIPMENT and MATERIALS

New Electrostatic Air-Cleaning Equipment

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has announced a new line of redesigned and improved "Precipitron" electrostatic air-cleaning equipment for commercial and industrial use.

Two sizes of cells have been adopted as standard: a cell having an effective cross section 8 inches wide by 18 inches long, with a cleaning capacity of 375 cubic feet of air per minute; and an 8x36-inch cell with a capacity twice as great. From these two standard units, an air-cleaning system for any given physical layout may be constructed quickly and economically. By the "blackness test" as used by the National Bureau of Standards, the larger cell has a guaranteed efficiency of 90 per cent at 600 cubic feet of air per minute and 85 per cent at 750 cubic feet per minute; the smaller cell is 90 per cent efficient at 300 cubic feet per minute or 85 per cent at 375 cubic feet per minute.

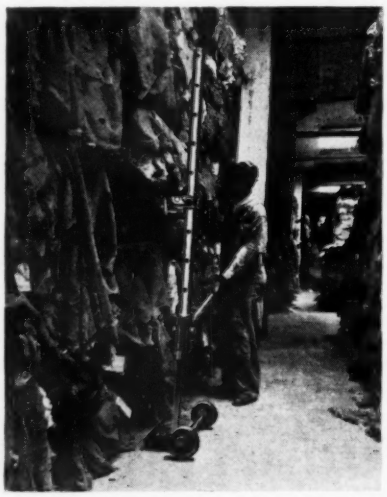
Power packs are available in two standard sizes: the type S for installations of from one to 12 Precipitron cells of the 8x36-inch size; and the Type L for installations of from 12 to 50 cells of the same size. For larger installations, power packs are used according to capacity requirements. Both power packs are similar in construction, consisting of a high-reactance transformer, rectifier tubes, a capacitor, an indicating system, and a cabinet to house the parts. Both types operate on 115-volt, single-phase a-c lines.



Left Precipitron power pack. Right, Collector cell ionizer

New Cotton Bale Jack Simplifies Resampling

Templeton, Kenly & Co., 1020 S. Central Avenue, Chicago, Ill., has introduced the Simplex No. 6275 cotton bale jack which makes bale sampling a faster, safer, more economical job. The



Makes bale sampling faster

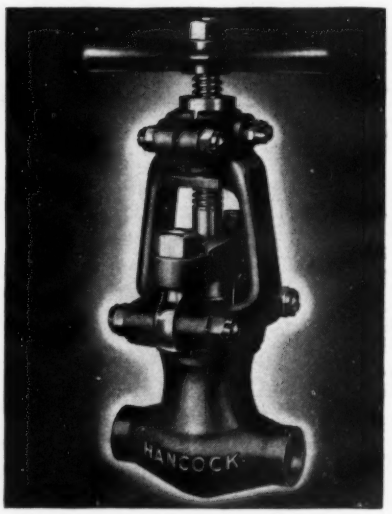
Simplex cotton bale jack is mounted on rubber-tired wheels and can be easily transported from place to place. In operation it is placed directly in front of the bale to be sampled and an adjustable bale fork is raised or lowered so that it will engage the bale to be sampled when the jack is operated. Operating the jacking mechanism causes the fork to lift the bale so that it can be sampled from the bottom. To sample a bale from the top, the bale above it is lifted.

The jack will readily lift bales up to five or six tiers high and has a full rated capacity of 5 tons. The unit is jacked from the side parallel to the rows so that the jack handle will not be fouled by the opposite bales. A double socket is provided for jacking in close quarters, such as against a wall or post. Two sizes are available, one 85 inches and the other 97 inches in height. Both units are ruggedly constructed, with strong channel type bases, for a lifetime of service. A 4-foot carbon steel lever bar is furnished with each unit.

◆

No Bonnet Joint Valve

The Hancock Valve Division of Manning, Maxwell & Moore, Inc., Bridgeport, Conn., has announced a revolutionary type of steel valve called the Hancock "No-Bonnet-Joint" valve. It has been developed to end leakage through the gasket joint between the



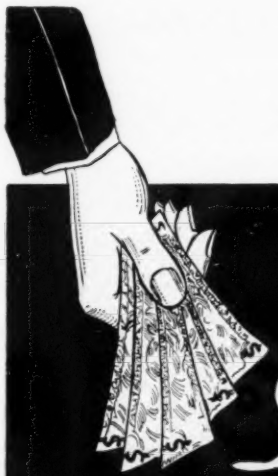
No leakage at gasket joint

valve body and the bonnet at elevated pressures and temperatures. It does this because there is no joint. The valves are made for pressures up to 2500 pounds at 1000 degrees F.

◆

Check Protector

The Todd Company, Rochester, N. Y., has made available a new Model 60 Protectograph for checkwriting protection. It has an 8-column keyboard, and has windows at the top to show the operator that the keys are properly set to write the desired amount. It handles voucher checks or checks in sheets as easily and as quickly as single checks.



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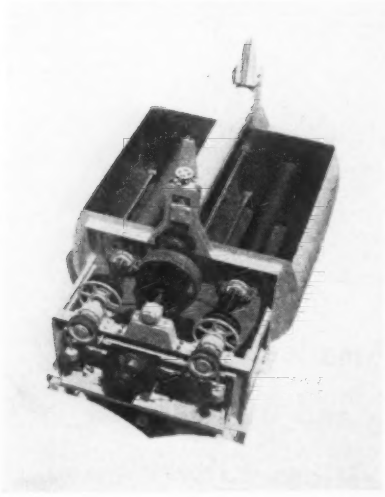
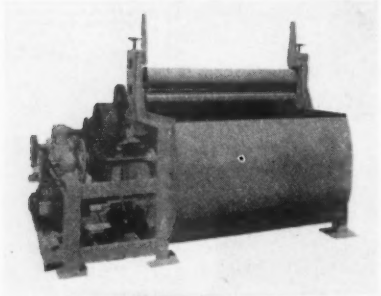




Left, top view and, right, front view of piece goods dyeing machine . . .

New Dyeing Machine for Piece Goods

The Duo Dyeing Machine Company, Box 1321, Charlotte, N. C., have announced the new Duo dyeing and processing machine, for dyeing and processing piece goods, which contains several features revolutionary from the standard method of jig operation.

The Duo machine, shown in the two accompanying illustrations, consists of two separate boxes, with a pair of controlled pressure rollers placed over the dividing partition. The cloth to be processed is wound on beam rolls that are placed within the boxes in such a position that the roll of goods can be batched submerged, semi-submerged or completely out of the liquor. The machine is motor-driven, with the squeeze rollers pulling the cloth from box to box with controlled tension at a constant speed of 100 yards a minute.

The manufacturers recommend that the cloth be run in the submerged or semi-submerged condition for de-sizing, scouring, bleaching, washing, soaping and stripping; that for ordinary dyeing processes, the dye liquor be maintained at such a level that the cloth can be wound upon the beam roll completely above the surface of the liquid. In this way, it is pointed out, the combined volume of the two boxes does not exceed the total volume of an ordinary jig, so that one run on the new machine is equivalent to two runs on a jig. Furthermore, it is explained, the cloth batches in a straight even roll because the pull on the goods is at a constant speed from the squeeze rollers. This feature obviously minimizes oxided selvages in the dyeing of vat and sulfur colors. The constant speed of 100 yards a minute coupled with the action of the squeeze rolls on each run, plus controlled tension, it is explained, produces even running of the cloth with improved results in penetration, cross and lengthwise shading, and practical elimination of selvage difficulties.

Results from present installations indicate improved quality and increased production. The essential features of the equipment are fully covered by patents.

◆

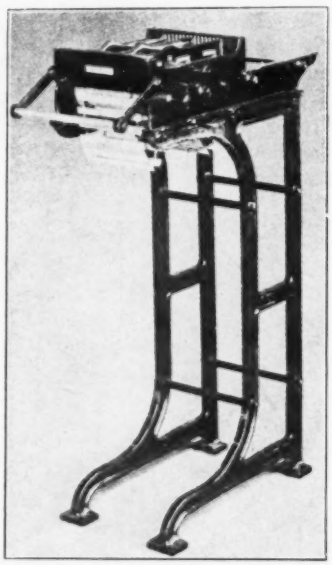
Substitute Products

Glyco Products Company, Inc., 148 LaFayette St., New York City, has developed products to be used as substitutes for certain products that cannot be obtained during foreign wars, or whose prices are greatly increased as the result of war. It has been announced that substitutes are now available for carnauba wax, montan wax, beeswax, ozokerite, glycerine, etc.

◆

Dobby Chain Tester

Steel Heddle Manufacturing Company, 2100 W. Allegheny Ave., Philadelphia, Pa., is now manufacturing the



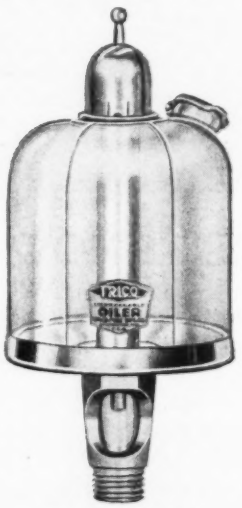
Dobby chain tester

dobby chain tester, which assists in eliminating errors or oversight in checking dobby chains. A small machine, it requires only a three by two foot space. The chains are placed in position and the entire machine locks automatically, leaving no chance for an error. It is constructed up to 32 shafts and will handle any number of bars, guaranteeing that the chains are perfect.

◆

Unbreakable Gravity Feed Oiler

Trico Fuse Manufacturing Company, Milwaukee, Wis., has announced a new line of visible gravity feed oilers, with unbreakable reservoirs. The oiler is mounted at the top of the part to be lubricated and any pre-determined number of drops of oil per minute can be



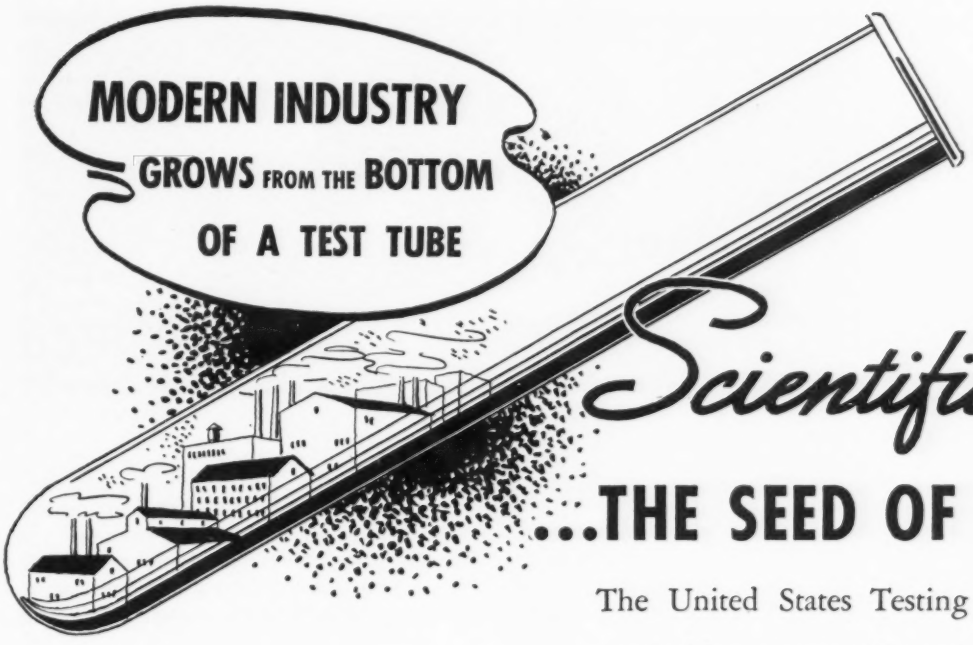
Gravity feed oiler

obtained by a simple adjustment of the ratchet control. After the desired adjustment has been made, no further attention is required except to keep a reserve supply of oil in the bottle. The shut-off lever at the top, when in a vertical position, feeds oil and when tilted to the side, stops the flow. The oiler is said to be 50 per cent lighter in weight and there are no gaskets to leak as the unbreakable bottle is cemented and roll-clinched to the heavy brass base. Made in three styles and in one, two, four and eight ounce capacities.

◆

Leather Belting Calculator

J. E. Rhoads & Sons, 35 North Sixth St., Philadelphia, Pa., have made available to anyone requesting it on company letterhead a calculator for leather belting. It operates somewhat on the principle of the slide rule, with the belt speed being determined quickly from a scale. It may easily and quickly be operated by anyone. Instantaneous calculations can be made for the horsepower per inch for all types of belts, belt width required for peak loads, etc. Also contained is a factor table for the various running conditions. The calculator may be carried in the vest pocket.



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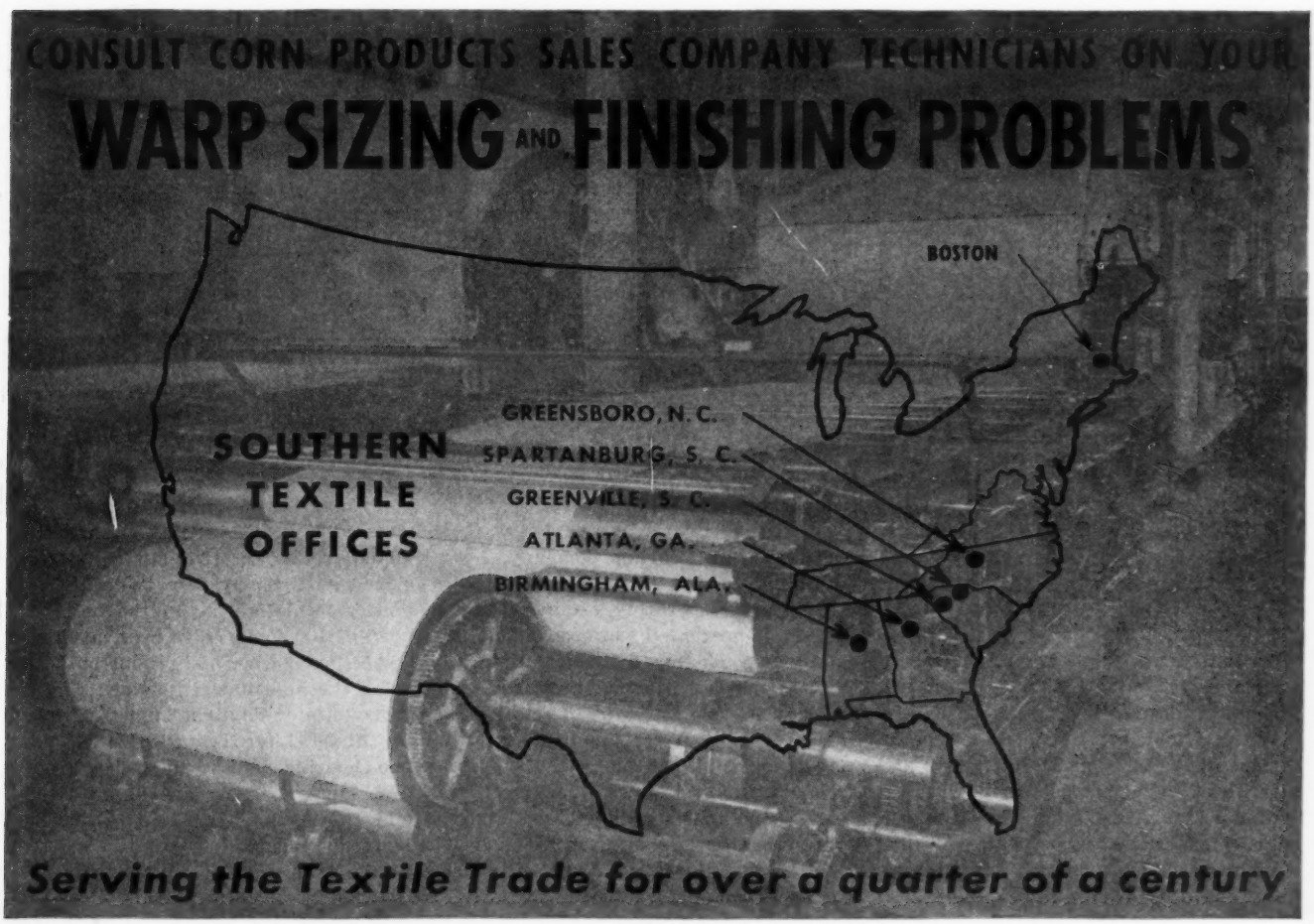
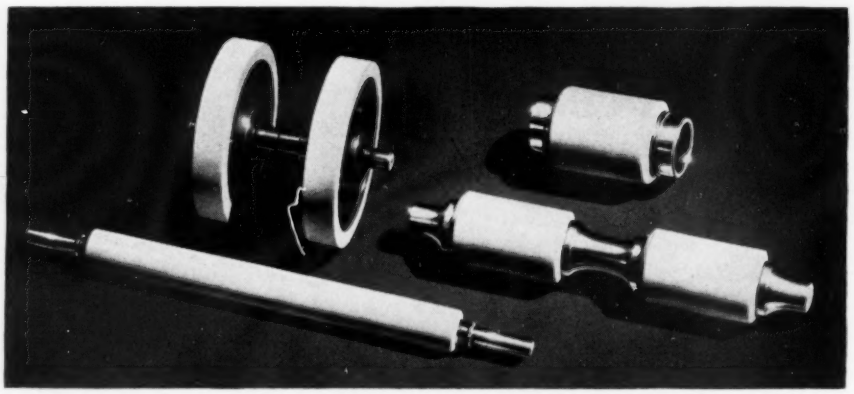


Serving the Textile Trade for over a quarter of a century

Dayco Roll Covers

Dayton Rubber Manufacturing Company, Textile Products Division, Dayton, Ohio, has announced a new roll cover called tempered Dayco, said to offer increased efficiency and economy.



The new covers have the proper coefficient of friction, are static-free and oil-resisting. Being vulcanized they have no cold flow and are said to be unaffected by temperature changes.

◆

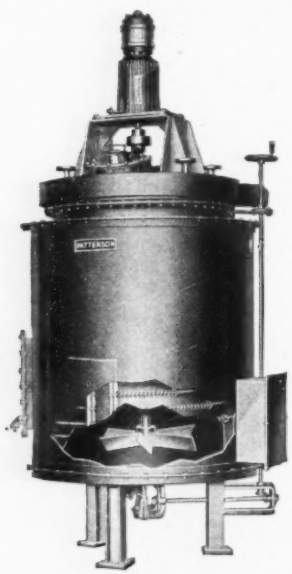
Six-Blade Fan Assembly

William J. Lohman, Inc., 62 Ninth Ave., New York City, has developed a sturdy 6-blade fan assembly, said to have high efficiency and to sell at low cost. All blades can be made from perfect stamping and forming dies, requiring no drill-outs, slugs, or fillings to balance the blades. The assembly is manufactured in sizes from 30 inches to 72 inches.

◆

Electric Process Kettles

The Patterson Foundry & Machine Company, East Liverpool, Ohio, has announced a line of electric process kettles equipped with the new Patterson "Flasheat" electric heating elements, and claims for these units . . . more rapid heat-up, more heat concentration



Electric process kettle

per unit area, higher efficiency, unusual ruggedness, immunity from mechanical destruction and longer life. With this new kettle immediate replacement of the elements, adjustments and repairs can be made without removal of the insulating jacket from the kettle. It permits quick water cooling which, coupled with more rapid heat-up, it is said to make possible a much shorter processing cycle than formerly possible.

The new kettles are built in plain and stainless tseel, as well as in a variety of non-ferrous metals, and are available in a wide range of sizes fitted with various types of mixing apparatus.

◆

Loom Selvage Apparatus

A patent (No. 2,178,377) has been granted Andrew J. Roper and James C. McCall of Piedmont, S. C., and B. F. Underwood, Easley, S. C., for a method of reinforcing the selvage threads in a loom during the picking motion. By using the invention, there is no need to increase the number of ends in the selvage, over those in the body of the cloth—the same number of ends throughout the entire width of the cloth remain the same. On certain fabrics this is desirable.

Also, by using the apparatus, double width cloth may be woven, according to the claims, without leaving any telltale markings in the center of the double width cloth after the cloth has undergone a finishing operation.

Substantially, the device consists of a comb attached to the temple of the loom, wherein the comb is placed in the selvage of the cloth during the picking motion in order to reinforce it during the pick, but is mechanically removed upon the beating-up motion of the lay.

◆

Porous Bronze Retainers for Ball Bearings

The Fafnir Bearing Company, New Britain, Conn., has announced ball bearings incorporating retainers made of oil-impregnated bronze. Holding and slowly feeding sufficient oil to lubricate the ball bearing throughout its entire life, this new type of retainer is said to be ideal for applications that are inaccessible, or subject to sub-zero temperatures. The retainer is fabricated from a strong, die-pressed bronze. Its porous structure forms a reservoir for the retention of as much as 25 per cent of its volume of oil. The microscopic pockets hold the oil and also maintain the oil film between the ball surfaces and the retainer pockets. The oil is fed from the porous retainer at the correct speed for proper lubrication, but not sufficiently fast to cause leakage.

◆

Larger Explosion-Proof D. C. Motors

The Reliance Electric & Engineering Company, Cleveland, Ohio, is now prepared to build explosion-proof direct current motors as large as 75 hp. The enclosed, fan-cooled design, with ball bearings, has been developed by Reliance in the smaller sizes from 1 hp. up over a period of years. Recent changes and improvements over the original design now make it possible to provide a complete range of sizes from 1 hp. up to 75 hp., all of them tested and approved by the Underwriters' Laboratories, Inc., for Class 1 Group D hazardous locations. The motors are designed to operate safely in places made dangerous by the presence of gases and vapors such as are produced by methane, acetone, benzene, the various alcohols, common pyroxylin solvents, and the vapors of various petroleum distillates, including gasoline.

◆

Twin-Lamp Fluorescent

Benjamin Electric Manufacturing Company, Des Plaines, Ill., has announced a new Alzak aluminum individual reflector, twin-lamp unit designed particularly to provide high intensity local lighting in the neighborhood of 100 footcandles over machines, inspection benches and production lines, using the new 40-watt, 48-inch fluorescent white or daylight lamps. Termed the Flur-O-Liter, it incorporates under one housing individual reflectors for each lamp, sockets complete with thermal glow-switch starters and line ballast equipment for regulating current to the lamps.

Visible Proof of Spinning Frame Savings———

Proof that NON-FLUID OIL prevents blackened yarn because it stays in roll necks and off roll covers—led to its use in 7 out of 10 mills.

Besides this visible saving, NON-FLUID OIL reduces other costs—oil and application expense are less because it goes 3 to 5 times as far as ordinary oil.

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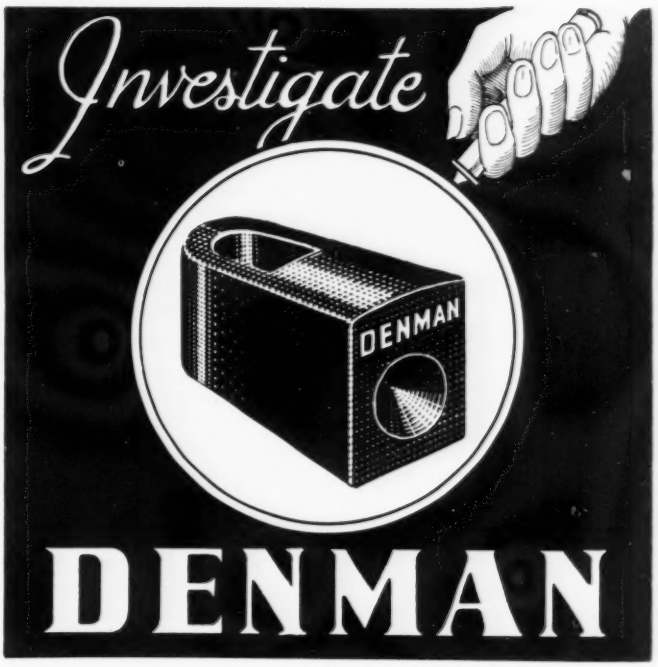
Better Lubrication at Less Cost per Month



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LOWEST COST PER LOOM PER YEAR

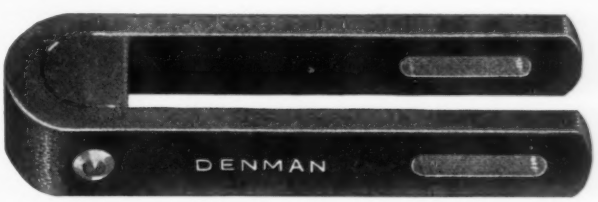
You will find:

—that Denman pioneered Fabric Loom Parts

—that years of research and thousands of dollars have been spent improving these products to fit the needs of the textile industry

—that they consistently show longer life than better qualities of other materials

—that Denman Loom Parts, used in leading textile mills throughout the world, are famous for their low cost, long life, and outstanding performance — even under the most gruelling weaving requirements.



The **Terrell Machine Co.,** *Inc.*

CHARLOTTE, N. C.

Luther Pilling, Danielson, Conn.—N. E. & Canada
E. W. S. Jasper, Elizabeth, N. J.—Penn. & N. J.
Geo. Thomas & Co., Ltd.—Manchester, England

TIMELY NEWS ITEMS with a TEXTILE SLANT

Knowlson President of Stewart-Warner Corp.

James S. Knowlson, chairman of the board of Stewart-Warner Corporation, has also been elected president. The chairman of the board had previously been vested with all of the powers and duties of the president,

Mr. Knowlson

and the board decided that the company could best be served at the present by combining the two offices in the same individual.

Frank Ross, one of the vice-presidents, has been elected a director to fill the vacancy created by the resignation of Joseph E. Otis, Jr., former president and director. Mr. Ross was also designated as senior vice-president by the board.

◆

New Holo-Krome Building

The Holo-Krome Screw Corporation is building an addition of approximately 8500 square feet to the company's present plant in Hartford, Conn. This one-story addition will be the latest style mill construction with brick walls, insulated roofs, and will afford the maximum amount of light.

◆

Calco Chemical News

The Calco Chemical Company, Inc., Bound Brook, N. J., a wholly owned subsidiary of American Cyanamid Company, has ceased to be a separate corporation and is now operating as Calco Chemical Division, American Cyanamid Company. As the Calco Chemical Division, it will operate with a separate organization for manufacture, sales, service, etc., and no changes are contemplated in the management, personnel or policy which will in any way interfere with the close relationship always enjoyed with its customers.

Ragan Ring Enlarges Headquarters

Ragan Ring Company, Atlanta, Ga., manufacturers of equipment for textile mills, will construct a new plant in the Eagan Mills section of College Park (near Atlanta). New machinery has been ordered to increase the capacity of the company, whose business has steadily increased for some time.

◆

Personnel Conference

The Fourth Annual Tennessee Industrial Personnel Conference will be held March 21-22 at the Hotel Peabody, Memphis, Tenn., to consider problems of special concern to southern industrial and commercial personnel managers. Correspondence relating to the conference should be directed to James H. Williamson, secretary-treasurer, Ferris Hall, The University of Tennessee, Knoxville, Tenn.

◆

Scott and Cheatham with New Research Laboratory

Walter M. Scott has been appointed chief of the cotton chemical finishing division of the southern regional research laboratory of the Department of Agriculture, at New Orleans, La., according to announcement by Dr. Henry G. Knight, chief of the Bureau of Agricultural Chemistry and Engineering. Dr. Scott will be responsible for the scientific and administrative work of the division, which will involve broad research and development work to improve or modify by chemical treatment cotton fiber, cotton fabrics, etc., as a part of the program of the new laboratory. Dr. Scott holds a Ph.D. degree in chemistry from the Yale Scientific School and a Ph.D. degree in organic chemistry from the graduate school at Yale. He is one of the founders of the American Association of Textile Chemists and Colorists.

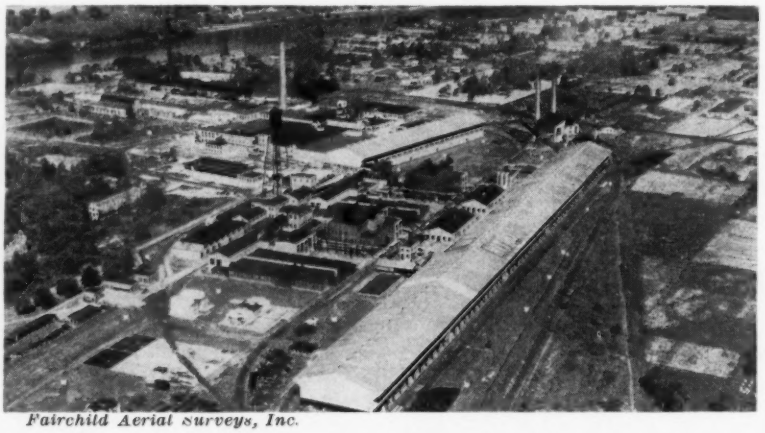
Robert J. Cheatham, who has been in charge of the cotton utilization research activities of the Bureau of Agricultural Economics, will head the cotton processing division of the new laboratory in New Orleans He will direct investigations involving the processing and utilization of cotton lint, including work on developing new and improved manufacturing processes, yarns, fabrics and other products composed wholly or in part of cotton. Mr. Cheatham, a graduate of Clemson in textile engineering, has had cotton mill experience and wide experience in teaching textile technology before joining the Department of Agriculture in 1927 to head the technological part of its program of developing new uses for cotton. One of the first and best known products developed by Mr. Cheatham was a duplex cotton bag for the consumer packaging of fruits and vegetables.

◆

Addition to Krebs Pigment Plant Planned

Krebs Pigment & Color Corporation has announced plans for a major addition to its large titanium pigments plant at Edge Moor, Delaware. Construction work will begin soon and will be completed by early fall of 1940. This construction will provide additional plant capacity for producing titanium dioxide and extended titanium pigments.

New Rayon Staple Fiber Plant



Fairchild Aerial Surveys, Inc.

The newly completed viscose staple fiber plant of the American Viscose Corporation at Nitro, West Virginia. The second unit, which has just been added, started production November 1. This plant will have a capacity of approximately 55 million pounds annual production.

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Bayfront Hotel

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There are two floors of spacious public rooms, not counting the Biscayne Dining Room, Miami's finest, atop the Hotel.

All routine services plus many seldom found in any hotel are provided at the Columbus.

New illustrated booklet gives full details.

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MIAMI · FLORIDA

SOAP COSTS REDUCED 10%

NOPCO CONCENTRATED SOAPS

THESE new Nopco Soaps have been developed to bring new standards of performance and economy to users of soap detergents in the textile industry. Here for the first time is a 99% soap. Compare this with ordinary soaps which may contain 12% water. This means you get up to 11 pounds more soap in a 100-lb. bag.

This new soap has undergone rigid tests for a year and a half both in the laboratory and under actual mill operating conditions. As a result, we know it is a superior soap both in quality and economy. It's all we claim and more.

Nopco concentrated soaps are manufactured under an exclusive Nopco patent.

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Address _____

City _____ State _____

Porosity Tester

The Saxl Instrument Co., Inc., Providence, Rhode Island, manufacturers of a complete line of precision testing instruments, has brought out a porosity tester with which it can be ascertained quantitatively whether milady's summer dress is light and porous, or whether a material to be used in gas masks is completely air tight. The whole range from extreme porosity to complete air-tightness is indicated by an aluminum float that goes up and down in a glass tube of slightly tapered finish. The porosity of a fabric is proportionate to the resistance that it puts up against the flow of air through the fabric. Accordingly then if a stream of air is blown through a fabric, a porous fabric will let a stream go through almost completely while a fabric of lesser porosity will offer a more serious obstacle to the flow of air. Use is made of this fact by the Saxl porosity tester. This apparatus consists essentially of an electrically driven air turbine shown in the center of the picture. The faster it turns the more air is blown into the tube, which has a spring operated device for inserting a piece of cloth between the lower bright plated tube and the airflow indicator on top of the upper part of the cloth holder. In order to accommodate a great range of fabrics ranging from surgical gauze and dress goods, to materials for protection against war gases or for measuring the flow of air through airplane wings, or balloon cloth, this can be adjusted by the setting of the speed control.

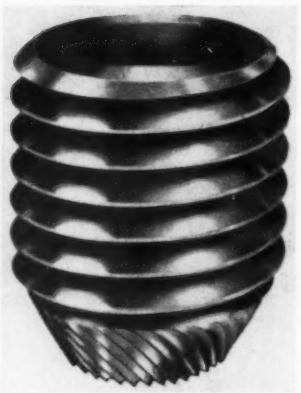
◆

"Vinyon"

American Viscose Corporation is producing a new textile fiber, a vinyl polymer product, sold under the trade mark of "Vinyon". This resin textile fiber is made in two general forms, continuous filament yarn and staple fiber; the continuous filament yarn will be available in practically all standard deniers. Both the cut staple and the continuous filament yarn are to be produced in the stretched and unstretched forms. The fiber was developed by Carbide and Carbon Chemicals Corporation; American Viscose Corporation is the first textile producer to make the fiber.

It is said to have high elasticity and high tensile strength. It is not flammable and will not absorb water. The fiber is thermoplastic, however, when exposed to temperatures up to 150 degrees F. there is no contraction or shrinkage. The thermoplastic properties become apparent when exposed to temperatures above 150 degrees.

The unusual properties of Vinyon fiber, particularly its resistance to chemicals either acid or alkali, its strength and the fact that this strength remains the same in wet or dry states, have led it into industrial uses as a first step of development.



This illustration shows the knurled point "Unbrako" self-locking set screw, developed by Standard Pressed Steel Co., Jenkintown, Pa., and described in October COTTON. The knurling is so devised that it offers a minimum of resistance when the screw is being pulled tight; but when it tries to unwind the knurls prevent it. It is available in all commercial sizes, both as socket and square-head sets, and in cup, dog and cone points.

◆

Acidseal Paints

The B. F. Goodrich Company, Akron, Ohio, is producing Acidseal paints. This product may be used as a covering for textile mill interiors as protection against humidity, and it also is said to dry before lint and dust can accumulate. It also serves as a protection in dyeing and bleaching mills, protection of laboratory equipment, mixing drums and reaction kettle covers, as well as for machinery of various kinds. Acidseal paints, according to the manufacturer, dry by evaporation, during which the solid material is united to metal or any other clean, dry surface with practically an inseparable bond.

◆

Patents Granted

According to Paul B. Eaton, patent attorney, Charlotte, N. C., several patents have been granted recently.

William B. Hodge, Parks-Cramer Company, Charlotte, N. C., was awarded a patent on a self-cleaning nozzle, which is used on humidifiers in textile plants.

Hilliard M. Sides, Greenville, S. C., received a patent on a bale tie, which is shaped and adapted to be located near one corner of the bale. In this position, the top overlapped end will be held much tighter by the fastener, according to the claims.

Hubert M. Craig, Gaston County Dyeing Machine Company, Stanley, N. C., was awarded a patent on a dye beam. Yarn is wound on this beam and the beam is then placed in a dyeing machine where dyestuffs under pressure are forced outwardly through the perforated cylinder and through the yarn and then the dyestuff is reversed to cause it to be forced through the yarn and through the cylinder.

Karl Lang, Morganton, N. C., has been granted a design patent on a stocking which relates to a keystone arrangement of reinforcing and ornamentation which not only produces an ornamental stocking but also reiforces the toe against punching through. This patent is assigned to Garrou Knitting Mills, Morganton, N. C.

◆

Third Quarter Rayon Output Substantially Above Year Ago

Production of rayon filament yarn registered a substantial gain during the third quarter of the year, according to figures compiled by the *Rayon Organon*, published by the Textile Economics Bureau, Inc.

United States production of rayon filament yarn for the quarter ended September 30 aggregated 77,800,000 pounds, an increase of 6 per cent compared with the 73,600,000 pounds produced in the June quarter and a gain of 12 per cent compared with the output of 69,400,000 pounds produced in the third quarter of 1938.

The increase in production was all reported in the viscose and cupra yarn divisions, whereas acetate yarn output was seriously restricted because of labor difficulties. Viscose and cupra yarn output for the September quarter was 13 per cent greater than reported for the June quarter, while acetate yarn production dropped 11 per cent during the same period.

Shipments of rayon yarn during the quarter ended September thirtieth aggregated 97,100,000 pounds as compared with this production of 77,800,000 pounds. This increased demand resulted in a further substantial reduction in surplus stocks which amounted to only 13,000,000 pounds at September 30, a drop of 60 per cent compared with stocks of 32,600,000 pounds reported on June 30.

Production of staple fiber established a new high record for all time during the September quarter. Production for the quarter aggregated 14,700,000 pounds, exceeding the former high of 11,500,000 pounds produced during the second quarter of the year by 28 per cent. The *Organon* points out that, although imports of rayon staple fiber during the third quarter remained at the 10,000,000-pound level, the total staple fiber available for consumption reached a new high of 24,700,000 pounds.

Obituary

CHARLES L. ASHLEY, 59, for many years sales representative in Georgia, Alabama and Tennessee for Dary Ring Traveler Company, of Taunton, Mass., passed away at his home in Atlanta, Ga., on November 4. Mr. Ashley, a popular and well known figure in his territory, had been ill for several months.

THOMAS MOOD MARCHANT, 59, Greenville, S. C., president of the Victor-Monaghan Company mill chain, with plants in South Carolina, passed away November 11 as the result of a heart attack. Mr. Marchant, who has long been an outstanding leader in the southern textile industry, was past president of both the Cotton Manufacturers Association of South Carolina and the American Cotton Manufacturers Association.

W. N. RANDLE, the first director of the A. French Textile School of the Georgia School of Technology, Atlanta, from 1900 to 1917, passed away in Atlanta on November 11, following a heart attack in the stadium immediately following the Tech-Kentucky football game. For the past several years, Mr. Randle had been head of the textile designing department at the Anchor Duck Mills, Rome, Ga.

GEORGE B. HAMBLIN, 63, vice-president of the Whitin Machine Works, Whitinsville, Mass., passed away the latter part of October following a lingering illness. He had been with Whitin for more than 40 years.

ARTHUR JEFFERSON BLACKWOOD, 57, retired superintendent of the Laura Cotton Mills of Orange Factory, near Durham, N. C., passed away the latter part of October.

MURRAY N. BULFORD, vice-president and general manager of the Clearwater (S. C.) Manufacturing Company, passed away recently at the age of 53.

H & B Export Department

H & B American Machine Company, Pawtucket, R. I., has announced that an export department has been established to handle foreign sales of the company's products. The department will devote especial attention to Latin American business. This new department formerly was the United States Machinery Company, and in this connection J. P. Mudd has been retained to travel exclusively in Latin America, supplementing the work of the export department.

Correction

EDITOR COTTON: On page 86 of your October issue, I am quoted as stating that the hot air chamber slashers I saw in Europe recently take up twice the floor space occupied by the ordinary American cylinder slasher.

This is not what I intended to convey. As a matter of fact, the manager of the textile mill where I saw the most modern of these machines told me that it was economical in floor space and produced twice as much yarn as his cylinder slashers, per square foot of space occupied.

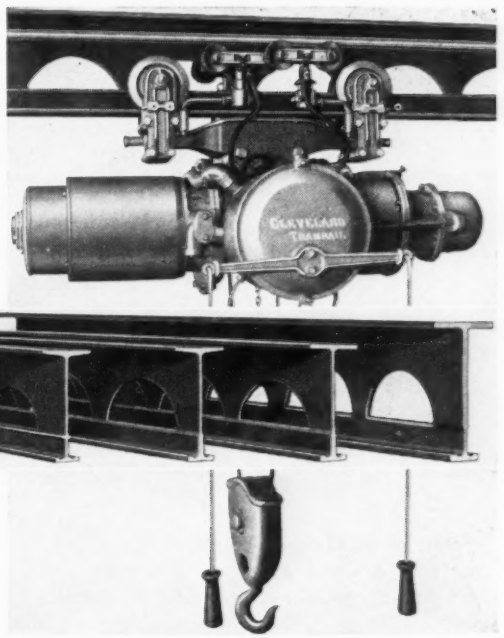
PAUL SEYDEL

Stein-Hall Builds Addition

Stein, Hall & Company is constructing a 5-story and basement addition to its factory in Long Island City, N. Y., which will provide about 27,000 square feet of new production space to meet increased demand for the company's gums and dextrines, which are used by the paper box, envelope, textile and other industries. Construction was started some time before the European war began, so that the construction is in no sense a "war baby". The top floor will provide an ideal set-up for enlargement of the company's Long Island City laboratory.

CLEVELAND TRAMRAIL

ARCH BEAMS



RIGHT: One ton Cleveland Tramrail electric hoist with hand-propelled carrier operating on Cleveland Tramrail arch beams.

A SIZE FOR EVERY PURPOSE

—for loads up to 5 tons

Arch beams are used for applications where regular Cleveland Tramrail rail does not lend itself to long spans or where satisfactory superstructure cannot be provided.

They consist of a wide flanged "T" member to which is welded a high-carbon long-wearing Tramrail rail with flat raised treads. The treads are hard and smooth. They eliminate troublesome peining which is common with systems subjected to severe service and continued rolling action of carriers.

Tramrail arch beams are an exclusive Cleveland Tramrail development and are available in six different depths to suit varying span conditions. They represent one of the many reasons why Cleveland Tramrail can serve you better.

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OVERHEAD MATERIALS HANDLING EQUIPMENT
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PERSONAL NOTES

About Men You Know

E. P. COFIELD has become general manager of the Erlanger Cotton Mills Co. and Nokomis Cotton Mills, Lexington, N. C., succeeding STUART W. RABB, SR., who recently resigned as vice-president and general manager after 19 years service with the organization. Mr. Cofield has for the past three years been superintendent of the Edna Mills Corp., Reidsville, N. C., and previously was for seven years general superintendent of Chadwick-Hoskins Company, Charlotte, N. C.

LEWIS H. BROWN, president, Johns-Manville Corporation, New York, received the first award of the Vermilye Medal, "in recognition of outstanding contribution in the field of industrial management." The purpose of the medal is to stimulate, encourage and recognize outstanding contributions in the field of industrial management, not only in the United States, but in other countries as well.

WALTER S. WYMAN, Augusta, Maine, president of New England Industries, Inc., has been elected president of the group's five mills, the Androscoggin, Bates and Hill at Lewiston, Maine, the Edwards at Augusta, Maine, and the York at Saco, Maine. He succeeds G. EDWARD BUXTON, who recently resigned. WESTON HOWLAND, Milton, Mass., executive vice-president of these mills, also resigned.

CHARLES E. GRAVELY, Alabama Polytechnic Institute textile graduate, formerly connected with Draper Corporation and The Textile Shop, both of Spartanburg, S. C., has become associated with the Bemis Bro. Bag Company, Talladega, Ala. T. W. COOPER, also an Alabama Poly graduate, has been made secondhand in spinning at this plant.

GEORGE M. WRIGHT, Republic Cotton Mills, Great Falls, S. C., has been elected chairman of the board of the National Rayon Weavers Association. C. WHITNEY DALL was re-elected president, secretary and treasurer; ALLAN BARROWS, Gosnold Mills Corporation, was elected first vice-president, and R. E. HENRY of Dunean Mills, Greenville, S. C., was elected second vice-president.

THOMAS GOLD, JR., president of Alpha chapter of Phi Psi at Philadelphia Textile School, and MISS MARJORIE ALICE FAGAN, of Bladenboro, N. C., were married recently in Bladenboro. They are in residence at the Gladstone Hotel, Philadelphia, and Mr. Gold is continuing his studies at the school.

JOHN T. HUNTER, formerly superintendent of the Holden-Leonard Woolen Mill, Bennington, Vt., has become superintendent of the woolen mill of Marshall Field & Company, Spray, N. C. Mr. Hunter is an honorary member of Gamma chapter of Phi Psi textile fraternity.

ANDREW C. ADAMS, formerly connected with the Soule Mill, New Bedford, Mass., has become associated with W. R. Grace & Company, Hanover Square, New York City, operators of several mills in South America. Mr. Adams is a graduate of the New Bedford (Mass.) Textile School.

W. LINTON HOWARD, for a number of years associated with Callaway Mills, LaGrange, Ga., in this company's LaGrange and New York offices, has recently accepted a position with Southern Mills, Inc., Atlanta, Ga., in the fabric development department.

JOHN F. TINSLEY, president and general manager of the Crompton & Knowles Loom Works, Worcester, Mass., was elected president of the Associated Industries of Massachusetts at the 24th annual meeting in Boston, Mass., during October.

JOHN M. CAUGHMAN, formerly connected with the carding department of the Springs Cotton Mills, Lancaster, S. C., has accepted the position of overseer of carding at the Startex Mills, Tucapau. S. C., of which JOE C. COBB is superintendent.

JOHN T. SLACK, II, formerly of the John T. Slack Corp., Springfield, Vt., is now connected with Smith & Cooley, Stafford Springs, Conn. Mr. Slack attended Lowell Textile Institute and is a member of Gamma chapter of Phi Psi textile fraternity.

DAVID SINGLETON COOK, manager of the Pepperell Manufacturing Company, Biddeford, Maine, is the newly elected president of the Textile Club of Northern New England, succeeding JOHN F. GREENE, agent of the Hill Manufacturing Company, Lewiston, Maine.

A. HENRY THURSTON, a graduate of Lowell Textile Institute and a member of Gamma chapter of Phi Psi textile fraternity, is now associated in an executive capacity with the Albany Trust Co., Albany, N. Y.

EDWIN FARNHAM GREENE has been elected chairman of the board of directors of Farr Alpaca Company. Mr. Greene was for many years treasurer of the Pacific Mills.

JOHN H. BRINE has resigned as president of the Rollins Hosiery Mills, Des Moines, Iowa, to become executive vice-president and general manager of Oscar Heineman Corporation, Chicago.

JAMES L. GEOFFROY and ROSS MACCALLUM have been elected to the board of directors of Federated Textiles, Inc. Mr. Geoffroy has been with the organization since 1937 and Mr. MacCallum since 1913.

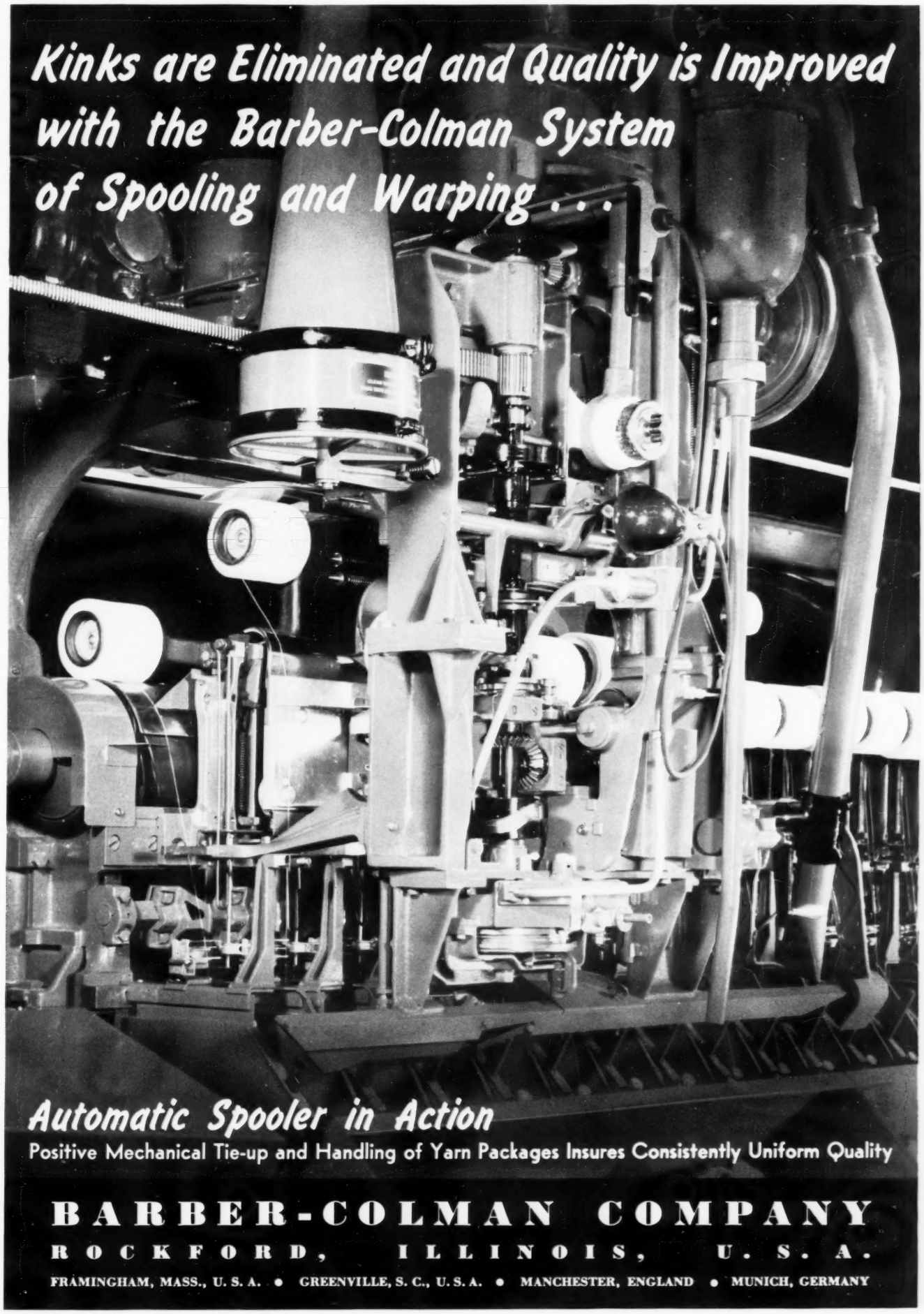
T. S. GRASSELLI has retired from the executive committee of E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del., but continues as vice-president and director of the company.

JAMES A. GRAHAM, formerly with the American Woolen Company, has been appointed agent of the Sheuerman Woolen Mills, Des Moines, Iowa.

Obituary

WALLACE I. STIMPSON, 75, vice-president and chairman of the board of directors of the Draper Corporation, died at his home in Hopedale, Mass., on November 21, following an affection of the heart which caused him to give up active duties last July. Mr. Stimpson, connected with Draper Corporation and its predecessors for about 50 years, was one of the great figures in the loom and weaving industry. He made many inventions, and played an important part in the development of Draper looms, shuttles, bobbins and spindles. He is survived by one daughter, MRS. RICHARD D. HARPER, two granddaughters, and two brothers, HARRY F. STIMPSON, of Brookline, and WARREN D. STIMPSON, of Worcester, Mass. Mrs. Stimpson passed away in 1931.

Additional obituary notices are on page 97.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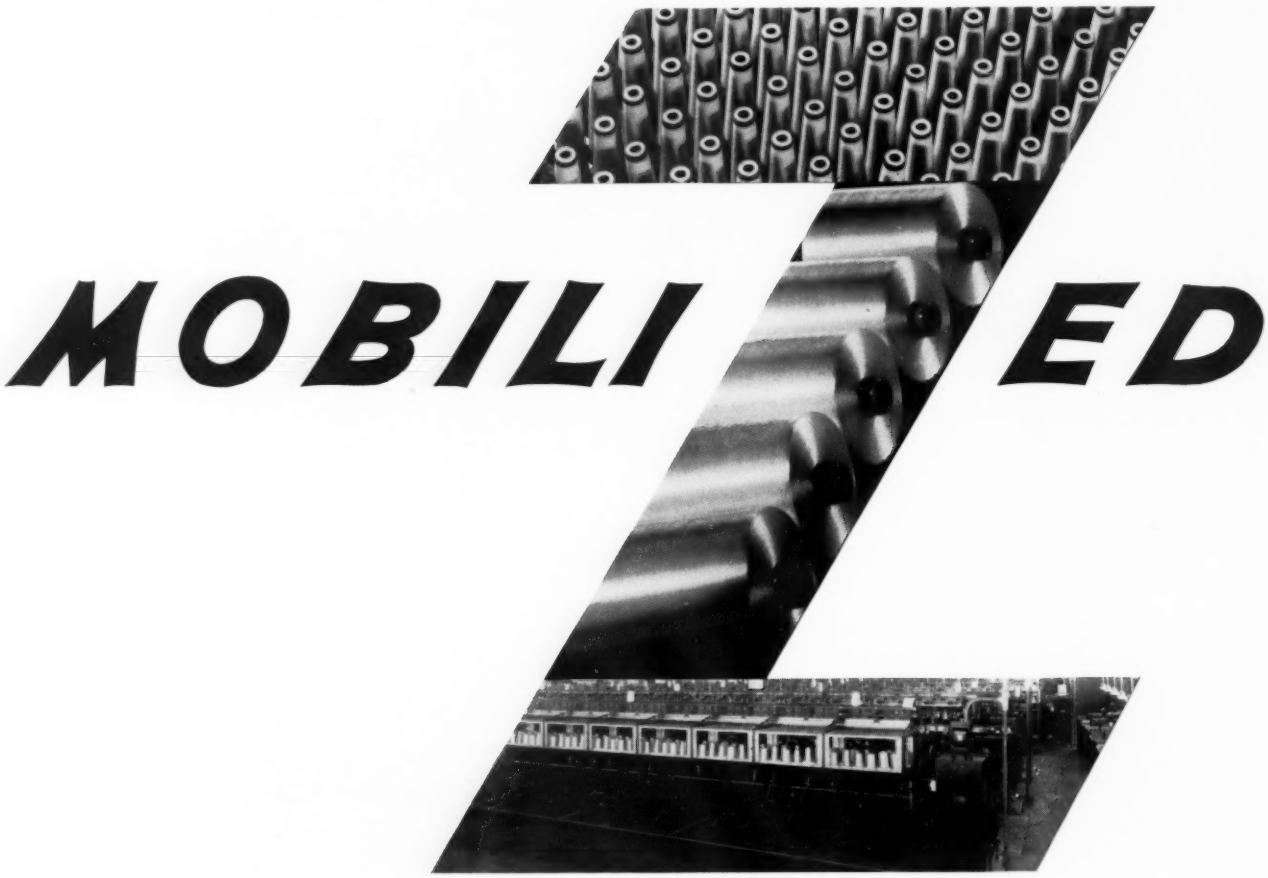

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Sonoco has matched the industrial speed-up in Textile Manufacturing—stride for stride. In 1937 we completed a five year plan of development and modernization of our plant facilities. Production capacity was increased to allow a comfortable margin beyond our immediate needs. All facilities were streamlined for greater efficiency and service.

Today, to borrow a current expression, we are completely *mobilized* to meet every test of a dependable source of supply.

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PAPER CARRIERS

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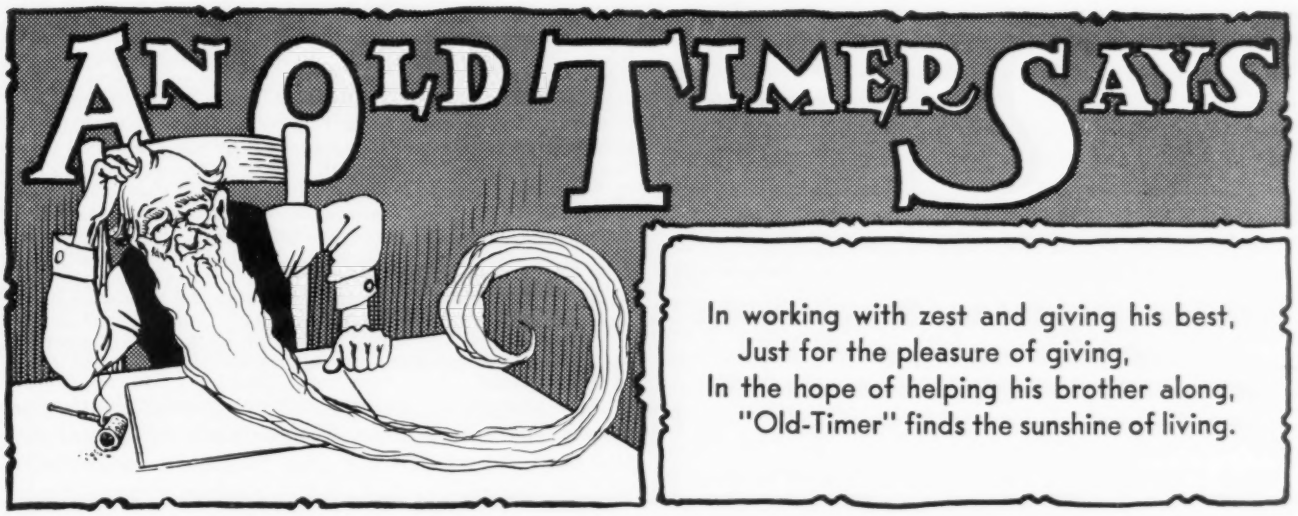
BRANTFORD ONT. HARTSVILLE S. C. MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

IMAGINATION AND PROGRESS

(*Part 5*)—*Concluding Old Timer's Review of "Pilgrim's Progress"*

• *This concludes an unusual kind of article by Old-Timer. He read John Bunyan's "Pilgrim's Progress" not so long ago (after hearing a minister use it as the text for a sermon), and was strongly impressed by the similarity of the trials and tribulations of Christian, the principal character, and those encountered today by textile men. The previous installments, in the August, September, October and November issues, started with Christian and followed him on his journeying. The accompanying final installment picks up the story:*

THE AUTHOR of Pilgrim's Progress now enters into a lengthy discourse, which illustrates more of the pitfalls into which the successful man may fall, also showing clearly how the average man may profit by the experiences of those who have gone before him. This is a point at which many men, especially young men, do not profit. They seem to think that they know more than all the successful men who have gone before them, and, instead of studying the experiences of those men and profiting by them, they rush headlong into the problems they see before them, thinking that no one else has ever seen those problems before. They spend months of effort, and, more often than not, spend the money entrusted to them by their firms, only to find that if they had not been quite so hard-headed, and had profited by the experience of the "old man", they would have saved a lot of energy and hard work, as well as money, for their employer. But let's hear Bunyan describe the next temptation, that which all successful men must overcome or eventually fall by the wayside; this is a temptation that is more alluring than most of the others to which we have referred before.

"Then Christian and Hopeful outwent them again, and went till they came at a delicate plain called Ease, where they went with much content, but that plain was but narrow, so they were quickly got over it. Now at the farther side of that plain was a little hill called Lucre, and in that hill a silver mine." (Many pilgrims who had formerly gone that way had the curiosity to attempt to explore the silver mine and had fallen in and been destroyed.)

"Then I saw in my dream, that a little off the road, over against the silver mine, stood Demas [gentleman like] to call to passengers to come and see. He said to Christian and his fellow, 'Ho! turn aside hither, and I will show you a thing.' "

Christian wanted to know what thing was so deserving as to turn them aside out of the way to see it, and Demas responded:

" 'Here is a silver mine, and some digging in it for treasure; if you will come, with a little pains you may richly provide for yourselves.' "

Hopeful wanted to go and see, but Christian said, " 'Not I. I have heard of this place before now, and how many have there been slain; that treasure is a snare to those that seek it, for it hindereth them in their pilgrimage.'

"Then Christian called to Demas saying, 'Is not the place dangerous? Hath it not hindered many in their pilgrimage?' "

Demas told him that it was not very dangerous, except to those that were careless, but Christian noticed that he blushed as he said it.

How does this talk sound, fellows, in comparison with the talk of some guy who has tried to pass a little graft on to you? Sure, the methods of graft have changed, even in our lifetime, but the same old snare is still here, seemingly giving something for nothing. The slick graft artist may no longer include a quart of your favorite brand in each shipment of sheepskins, or in something else he is shipping to you. You may not receive so much per barrel of the sizing you buy, and the big man may not receive a check or cash representing 5 per cent of that ten or twenty thousand dollar equipment order, but the ancient game is played today, with the same object in view, in which it was played many generations ago, and, very likely, will be played for all time to come. It is just one of those things with which every man who obtains promotion will invariably be confronted, and it is today what it always has been. Are you strong enough to pass it up?

It is almost unbelievable, the things to which the average man who has access to his employer's money or goods, can stoop—petty little forms of graft—and not consider it graft at all.

OLD-TIMER once took a position where the firm had a large number of trucks and was surprised—no, he

will retract that statement; he was really not surprised—to find many of the department heads running their personal autos without much cost for gas and oil. Numerous are the cases where repairs do not cost the owners of personal autos very much, if the plant is equipped with a modern machine shop. And, of course, *stamps* for personal correspondence, are usually just taken for granted.

"Tall trees from little acorns grow", may also mean that big graft may oftentimes grow from little graft. As stated, there are so many little grafts which men do not even consider graft at all, but just as sure as human nature is what it is, and it will always be the same, we know that H. Mann spoke the truth when he said, "Habit is a cable—we weave a thread of it every day, and at last we cannot break it." Anything which a human being does consistently soon becomes a habit, the act being noticed less and less until he finally wakes up to the fact that he has a bad habit on his hands; or a good habit has been formed.

Here is something hard to explain, why an intelligent man—intelligent enough to receive promotion—receiving a salary of several thousand dollars a year, will jeopardize that nice salary by stooping to accept one thousand dollars, or more often one hundred dollars, which he knows perfectly well he should not accept. He will tell *you* not to do it, and then do the very thing himself that he tells *you* not to do. Oh Heck! you answer that one.

Bunyan now goes into a lengthy discourse, relating the experience Christian has with such men as Mr. Money-love, Mr. Vain Confidence, Giant Despair and his wife Diffidence, etc. This man, Giant Despair, gave Christian and his fellow travelers a great deal of trouble. The giant found them asleep on his property and had them put in prison, but they finally got their release and erected a pillar at that place so that future pilgrims might be warned against falling into a like difficulty; warning them against falling into the hands of Giant Despair. However, I'm afraid that many pilgrims did not profit by the experiences of Christian and his companion. It is the same with young men of today; they do not heed the advice of their parents and their friends. However, as the old clock pendulum does not always swing in one direction, Christian next encountered some good luck on his journey:

"They came to the Delectable Mountains, and beheld gardens and orchards, vineyards and fountains of water, where they drank and washed themselves and ate freely of the fruits.

"They found shepherds on these mountains who were not only very sociable, but were anxious to be of service to Christian and his friends on their journey. The shepherds, who were named Knowledge, Experience, Watchful and Service, invited the pilgrims to stay with them awhile. Here, therefore, Christian gained much knowledge and experience, as well as getting a good lesson in watchfulness and sincerity."

This is a reminder to all men, in all walks of life—textile executives, merchants, doctors, or what not—that even when you have progressed far in your quest of success, still you must exert every effort to gain more knowledge, and to profit by the experiences of others; learn to be watchful of the pitfalls, which never cease to beset your pathway, and learn that one of the cardinal virtues of any man is sincerity.

"Then I saw in my dream that in the morning the shepherds called up Christian and Hopeful to walk with them in the mountains . . . Then said the shepherds to one another, 'Shall we show these Pilgrims some wonders?' So when they had concluded to do it, they had them first to the top of a hill called Error, which was very steep on the fartherest side, and bid them look down to the bottom. So Christian and Hopeful looked down and saw at the bottom several men dashed all to pieces by a fall they had from the top. Then said Christian, 'What meaneth this?' The shepherds answered, 'Have you not heard of them that were made to err?' . . . They answered, 'Yes'. Then said the shepherds, 'Those that you see lie dashed in pieces at the bottom of this mountain are they, and they have continued to this day unburied, as you see, for an example to others to take heed how they clamber too high, or how they come too near the brink of this mountain'.

"Then I saw that they had them to the top of another mountain, and the name of that is Caution, and bid them look afar off."

Now the pilgrim is shown that by using Caution he may avoid falling down the mountain of Error, and the truth is pointed out that the more successful a man is, the greater the need of caution to avoid error, which of course is also sound reasoning for the overseer or superintendent or business man of today. The shepherds also told the pilgrims to beware of the Flatterer, knowing that as a man achieves success and begins to feel that he is a "'big shot" he is the more susceptible to the wiles of the flatterer. Here again is a freak of human nature. Most any person can tell when a flatterer *is* a flatterer; that is, when he is being extolled for his wonderful success or told that he is a genius, that he is a super man in his line, etc. Most any man can tell whether the person who is giving him that kind of a line is just trying to flatter and thereby win some selfish point or whether he is really sincere in his compliments. But, and here is the strange thing about it, whether you believe that the flatterer is sincere, or whether you do not, you usually lend an attentive ear, and you experience that feeling of exhilaration which comes to the man who really deserves to be complimented.

You know, OLD-TIMER started many, many years ago, when he was an overseer, to study human nature, not just as a mental study, but in an endeavor to classify and record many of the more outstanding forms of human nature, such as why overseers and superintendents lost their jobs; why with two overseers with practically the same ability, so far as mechanics of machinery and knowledge of textile manufacturing are concerned, one of them would be a successful overseer and advance to a superintendency, while the other could not hold an overseer's position more than a year or two at a time. *One* of the conclusions drawn was, that if that overseer who did not advance, although of equal ability with the other, had only spent a small part of his leisure hours in the study of good literature, some of which, by the way, is included in the OLD-TIMER study course, he too could have been just as successful as the other man. This statement may sound a little far-fetched to the average reader, and we only wish space would permit a more detailed reasoning on this point, but as we are trying to show you the practical side of Pilgrim's Progress, we cannot, of course, go into that subject. However, let us admonish you to keep in mind that most important subject, that "will-o'-the-wisp", so to speak, human nature, while you are reading the quotations and comments on Pilgrim's Progress, and you will get a wonderful lesson in these simple yet most complicated problems.

And, speaking of leisure hours, OLD-TIMER cannot help but depart from his subject long enough to relate to you what he feels is a gross waste of time by two young men who are the clerks at the seaside resort where this article is being written. They are supposed to be working; that is, they are not here on vacation, but they have more than half of their time to spare and they consume most of that time in playing cards; they actually play for three hours sometimes, with only an interruption, occasionally, to answer the 'phone or to speak to some prospective guest who comes in for information. Please understand, OLD-TIMER thinks bridge, and many other card games, are good mind-trainers and wonderful for recreation, but these young men are not playing just for recreation; they are playing *to kill time.* The point is, why in heck don't they take advantage of that spare time to study? Play cards sometimes for recreation, yes, certainly, but if they only realized how valuable that time is, that they are wasting, and that either of them could acquire a college education in that spare time—if they would only read Pilgrim's Progress and profit by some of the experiences of Bunyan's characters. Oh well, I suppose it will always be that some people will take advantage of every minute of their time, and still have much pleasure, while others will gamble their leisure away. You know, when OLD-TIMER hears or reads some of the arguments about dividing up all the wealth, so each person would have the same amount, he thinks it is not such a wonderful idea, when he knows that we are all given the same amount of time—24 hours—and look what some of us do with it; some squander it like a drunken sailor spends his monthly pay in one night of revelry, while others conserve theirs, and thereby have more; and, by the same reasoning, if all wealth were divided equally among us it would take only a short while for everything to be back right where it is today.

Several days later: Upon arrival at the office there are two letters pertaining to this series of articles on which OLD-TIMER has been working, hoping that his brother overseers and superintendents would get a thought out of it that would help them in their work, and probably another that would inspire them to improve their knowledge of human nature, thereby qualifying them to match wits with others when confronted with the many problems in the textile industry of today, and possibly a thought which would enable them to enjoy life a little more, to be happy on the jobs they are running and thereby enabled to run them a little better. He also hoped that they might get a little recreation while reading this material, and realize that this old world is not such a bad place after all in which to live.

Well, I'll just quote a paragraph or so from one of those letters, a letter from a friend of mine who wrote me after reading the original manuscript of this article prior to publication, yes, even before my editor saw it:

"This article revived my interest in Pilgrim's Progress, which I read many years ago; a friend knowing of my interest, sent me the book; my mother and sister wanted me to read it aloud to them to refresh their memories; my niece heard about it and began reading a copy, and the friend who sent me the book is reading a copy; I have advised my Sunday School class to read it, and 'around and around she goes, and where she stops, nobody knows.' "

So, by heck, there are five people, I know, who got something out of OLD-TIMER'S efforts before you, (the reader) read it, and he is hoping you will get something out of it too.

But, look out! this other letter is from my editor, who has just finished reading two installments of the article and he is not quite as enthused as is my friend; in fact, OLD-TIMER can "sorter" read between the lines and get an idea as to what he is saying; and it runs something like this:

"Here! What's the idea? Who do you think wrote that book, anyway, you or Bunyan? And what are you trying to do, anyhow, take up all the space we have—?"

Yeah, just "sorter" reading between the lines I take it that Mr. Editor is saying "Stop"!

Anyway, fellows, I hope you will appreciate OLD-TIMER'S efforts a little more than Mr. Edtior did, and if you do, we can thumb our noses at him for stopping us before we got through.

Imagination! As stated at the beginning of this article, Mr. Brisbane claimed that anything which could be imagined by the human brain would be possible of accomplishment, and an ancient writer said: "Without vision the people perish." Bunyan had imagination to a great degree, and through it blessed the world; it is an excellent thing for overseers and superintendents to have, if rightly used. In the words of Dugald Stewart:

The faculty of imagination is the great spring of human activity, and the principal source of human improvement. As it delights in presenting to the mind scenes and characters more perfect that those which we are acquainted with, it prevents us from ever being completely satisfied with our present condition, or with our past attainments, and engages us continually in the pursuit of some untried enjoyment, or of some ideal excellence. Destroy this faculty and the condition of man will become as stationary as that of the brutes.

Annual Meeting of Phi Psi in Philadelphia April 11-13

The 37th annual convention of *Phi Psi* textile fraternity will be held at the Bellevue-Stratford Hotel, Philadelphia, Pa., April 11-12-13, during the week of the Knitting Arts Exhibition in Philadelphia, it is announced by Theo. H. Thomas, Bennington, Vt., grand secretary. The convention will be under the auspices of the Philadelphia alumni chapter and the grand council of the fraternity. J. Ellsworth Fite, of Krout & Fite Co., Philadelphia, is grand president; and A. Kempton Haynes, Rohm & Haas, Inc., Atlanta, Ga., is grand vice-president of the fraternity, which has more than 2,000 members, largely graduates and students in nine of the country's textile schools.

The Boston alumni chapter of the fraternity will hold its annual midwinter banquet at the Miles Standish Hotel in Boston, on Saturday, January 13, with Mortimer T. Farley, of Farley-Harvey Company, Boston, in charge. Harold Cochrane, past grand council president, who is general sales manager of the Fitchburg Yarn Company, will administer the third degree of the fraternity in full form to new candidates for membership.

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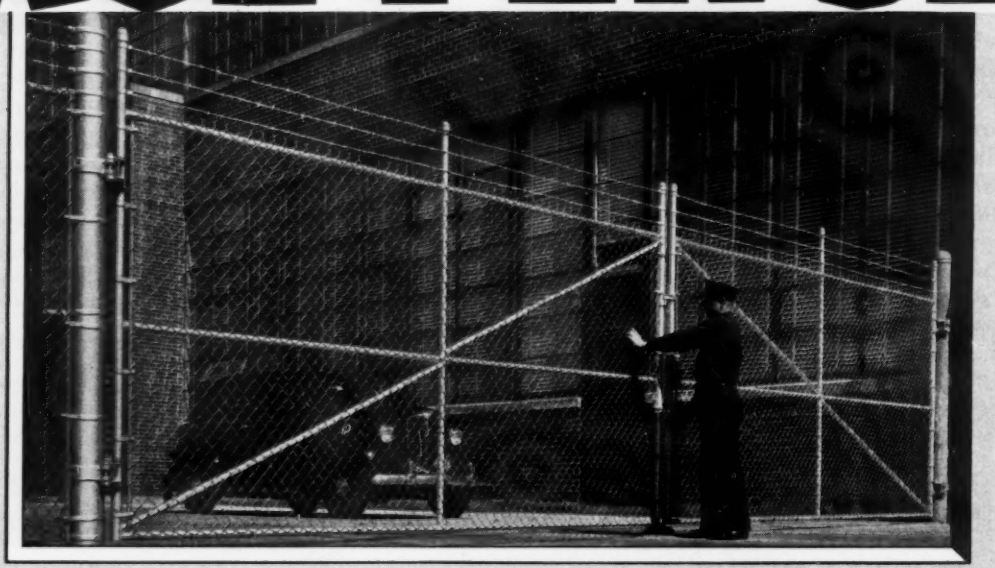

HOW HIGH IS AN 8-FOOT FENCE?

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HOW OTHER MEN MANAGE

Comb on Card Feed Plate

The "Old Card Doctor" shows how the doffer comb may be used as a cleaning device on the feed plate of the card . . . . . .

THE "Old Card Doctor" gave a few prescriptions for cards and drawing frames in his article on page 93 of the July issue of COTTON, and he briefly said that a comb blade placed just beneath the feed plate at an angle of about 35 degrees, with the teeth pointing toward the licker-in screen back lip, and the comb blade fastened to the bottom of the feed plate, would clean the stock well.

This point was of particular interest to several mill men and they wrote for further instructions as to how this comb blade should be fixed on the feed plate of the card. The "Old Card Doctor" now gives us the complete story.

Fig 1. shows a doffer comb blade attached beneath the feed plate on a card. A recess is milled out in the feed plate as shown to receive the comb, and the blade is fastened to the feed plate with screws, which hold it rigid.

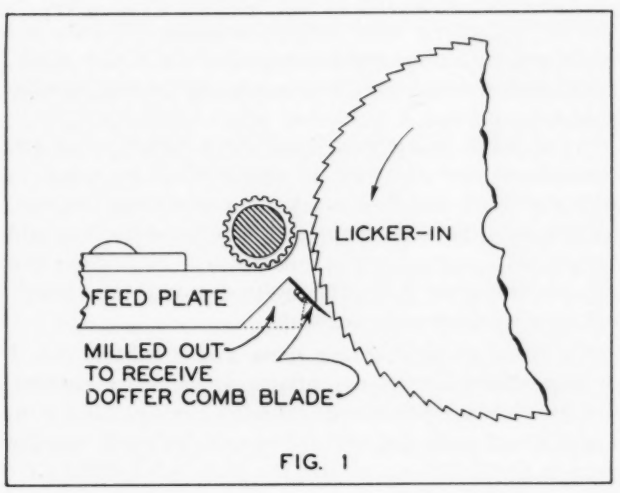

FIG. 1

The sloping side of the teeth on the comb blade are on the upper side and set so that the licker-in takes the cotton through the teeth, causing a combing action on the fibers, which whip out much of the leaf, stalk, dirt, and other foreign matter.

By having the screw slots rectangular, the comb blade can be set to protrude beyond the face of the feed plate to any desired setting to the licker-in. Best results are obtained by setting at from 7/1000-inch to 12/1000-inch from the point of the blade teeth to the licker-in teeth.

As shown, the comb should be placed at a 35-40 degree angle downward to give easier combing action on the fibers. Fig. 2 shows how the screws are inserted in the comb blade and into the feed plate.

The work requires a highly skilled card grinder, but once the comb is set there is little danger of its having to be moved again.

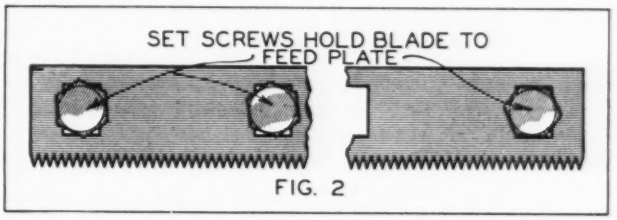

FIG. 2

To set the comb blade to the licker-in first set the licker-in to the cylinder. Then set the feed plate to the licker-in and then set the comb blade to the licker-in. This can be accomplished better by loosening the setscrews and placing the gauge in at the end and tightening the screws on the comb. After making certain that both ends are to the correct setting, feel the gauge along and tighten all other setscrews in the comb blade. Then set the mote knives to 7/1000-inch top and 5/1000-inch at bottom.

A simple waste test can be run after this comb is used in order to see the results. Also, after the stock is cleaner the flats can be set a little closer.

Filling Bunch for Coarse or Fine Yarn

EDITOR COTTON:

Very often when coarse filling and fine filling are run in multiple-box looms, there is a waste of either the fine or the coarse filling because the feeler can only be set for one type of filling. In other words, when the filling feeler is set to care for the coarse yarn, the finer yarn is exchanged earlier than it should be, causing much waste.

This is a trouble that is difficult to contend with and to cure, but I have had some relief from this by backwinding both the coarse and fine filling and building up a bunch on either the twister or quiller that will allow the feeler to be set so that more of the fine yarn could be used.

CONTRIBUTOR NO. 6989

Foreign Matter in Cloth

EDITOR COTTON:

In the article on page 101 of the September issue of COTTON, a mill man had asked for the cause of certain black specks in his cloth, even after it had been finished. He was given several possible causes for this trouble, but I would like to add my own opinion to those given, as it may help this man clear up his difficulty.

I have had this same trouble and I found in my case that the overhead counter belts were shedding small black flakes, which were very dry and lifeless and showed no sign of being oily. I believe most of it is little balls of lint which are rolled up as the belt carries the lint around the pulley.

Larger particles of this matter will cause the ends to come down, but the small ones will twist into the yarn and are hard to get out.

I believe if this man having the trouble will make inspections where he has belts running close to his work, both in the speeder and spinning rooms, he will find this to be his trouble.

Once these little balls get into the work anywhere in the carding process it will stay in the stock, unless the cotton is combed, and even after being combed the matter still has a chance of getting in elsewhere.

If his plant has no counter belts running, this foreign matter is likely to get into the stock at the end of the speeders and spinning frames where he is using belting to pull the frames.

CONTRIBUTOR NO. 6987

Figuring Job for Battery Filler

EDITOR COTTON:

In some plants the assignment of battery loads is something of a problem. This is especially true where styles and numbers are frequently changed or where more than one size bobbin is used. If goods are made both with and without feelers the problem is further complicated.

It has been the practice to set battery load by timing the running of one or more bobbins of filling, then by computations to determine how many bobbins for one battery for one day and to try to assign the battery load on figures resulting from these calculations. Several other methods of determining this figure are in use.

However, due to differences in loom speeds, differences in amount of yarn on various bobbins, differences in width of cloth, and contraction of fabrics on various looms it is practically impossible to arrive at a figure which will be accurate.

One of the easiest and most accurate methods of getting at this figure is to make a test for the whole working day of the battery hand. For some time the tests were made by following the battery hand all day, counting each bobbin or piece as it was placed in the battery. Here again it is difficult to tell how many more or less quills were in the set of batteries at the end of the day than at the beginning. To overcome this difficulty the following method has been worked out.

Before starting time check each battery, removing all quills not full. Empty each quill can and if practical, tie it in place. Read each pick clock and record the readings. Start the looms up and have the battery hand begin her rounds. Note the time of starting and completion of each round as well as the time of the looms being started up. Also record the time looms were stopped at completion of the battery filler's days work. While looms are stopped read pick clocks and remove all empty quills, full quills or pieces from quill cans for counting. Count all quills, either as emptied, one fourth full, one half full, three fourths full, and full. Total all quills together to determine the total number of quills handled. Calculate pieces to full quills and add to empty quills to determine total full quills or yarn consumed.

CONTRIBUTOR NO. 6982

Hard Ends on Dyed Stock

EDITOR COTTON:

In reply to the question as asked by "CONTRIBUTOR NO. 6933" on page 158 of the October 1939 issue of COTTON regarding this visible problem of reducing hard ends on his roving processes of dyed raw stock, I shall endeavor to give him some aid in this trouble he is experiencing.*

As a usual thing raw dyed stock requires an additional amount of twist in the roving in order to facilitate good running work on the roving frames. Even in this instance some go to the extreme and add considerably more than is necessary. But when the next process gets this over twisted roving the result isn't so appealing and pleasant.

By doing some guessing here, and I believe that I am somewhere in the neighborhood of being correct, with his slubbers producing .56 hank roving, 240 r.p.m. of the front roll, and .90 turns per inch his spindle speed is about 840 r.p.m. and the jack shaft 482 r.p.m. 1¼-inch front roll.

On his 10x5 intermediates producing 1.40 hk. roving, front roll speed of 190 r.p.m., 1.43 t.p.i., his spindles speed is about 1068 r.p.m., and the jack shaft 534 r.p.m. 1¼-inch front roll.

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*"CONTRIBUTOR NO. 6933", who asked for roving frame settings when running raw stock dyed cotton, is using Strict Middling cotton, 1⅛-inch staple. His set-up is as follows: Slubber front roll 240 r.p.m., 64 grain drawing sliver, making .56-hank roving. Intermediate front roll 190 r.p.m. making 1.40-hank roving with double creel of .56-hank roving. Speeder front roll 105 r.p.m. making 4.60-hank roving from double creel of 1.40-hank roving.

His fine roving frames on 4.60 hank roving, 105 r.p.m. and 2.60 t.p.i. are making about 1072 r.p.m. of spindles and 398 r.p.m. of the jack shaft. 1⅛-inch front roll

I too presume that he has 8x4 fine roving or speeder due to the low front roll speed.

All these but the fine roving or speeders are far in excess of the standards as recommended by the manufacturers which are as follows:

	H&B	S-L	Woon.	Whitin.
12 x 6 Slubbers				
Spindle speed	630	600	660	650
Jack shaft speed	361	271	344	320
10 x 5 Intermediates				
Spindle r.p.m.	850	750	900	850
Jack shaft r.p.m.	487	326	441	418
8 x 4 Roving				
Spindle r.p.m.	1050	1000	1150	1050
Jack shaft r.p.m.	388	326	441	359

It is evident that his production demands these higher than standard speeds, but I find many mills do not adhere to the standards as recommended by the machinery builders which are conservative no doubt, but in the interest of best work. In the case of "CONTRIBUTOR NO. 6933" I would suggest the reduction of the jack shaft and spindle speed and remove as much twist as consistent and still retain this roll speed, or in some reasonable range of it. He will find that his production will not be reduced, and his work will run much better, and better roving, yarn and cloth will be made.

Supposing he is running a 43 tooth twist gear on his 12x6 slubbers, with his 840 r.p.m. of spindles; try reducing this to 708, changing his twist gear to 51, which will reduce his twist multiple to 1.02, which is plenty of twist in slubber roving. I feel certain that this will go quite a way toward reducing his hard ends on his intermediates, and still not be stretching his roving, or having it to break back in the creels. This will also maintain his present front roll speed.

On his 10x5 intermediates, and presently running a 27 tooth twist gear, reduce his spindles speed from 1,068 to 900 r.p.m. changing his twist gear to 32, and using this 1.02 twist multiiple will retain his front roll speed, and remove some of that excess twist over what is needed, and some hard ends too.

Too much twist will always tend toward some hard ends that have no other visible cause, and the fibers do not all run to the staple to which it is bought or classed. Some are over his 15/16-inch, with some under, and his settings for only this 15/16-inch, as well as the twist must be governed by the result and not always the sole figures of theory.

If the spinning is having hard ends too, he might add two teeth in his twist gear for his fine frames, but the spindle speed is in the right range.

Roll settings are important, and also deal greatly in this hard end situation.

"WASH (R. I.)" in the October issue discussing "The Art of Drafting" expresses the roll setting principle as well as I ever saw, saying that the excess of 1/16-inch over staple length isn't an iron-clad standard, and is confusing to students. Right he is, and even after his two score years as a superintendent he openly admits that he is still a student. Thanks to him, I am too, but will offer the following settings for this 15/16-inch raw stock dyed cotton:

Center to Center Settings

	Slubbers	Inters.	Speeders
Front roll to second	1 3/16-in.	1 5/32-in.	1 1/8 -in.
Second to back roll	1 7/16-in.	1 3/8 -in.	1 3/8 -in.

Increasing his break draft to about 1.26 or even up to 1.30 between the middle and back rolls should cut down on his hard ends and increase the break factor of his yarn. Mixed weights on the lines of rolls could induce hard ends. A close examination should be made here. Added twist in the summer months is often overlooked and not removed in the cooler months when it is not needed.

Top rolls, whether cork, synthetic or leather should be kept in the peak of condition. When a top roll becomes grooved or channelled by wear or a stopped roving traverse, hard ends are inevitable. Roving traverses should be examined by the section men at least once weekly to make sure they are running. Channelled or grooved top rolls should be removed as soon as discovered.

High relative humidity will also cause hard ends, but with raw stock dyed cotton an abnormal amount of humidity is often necessary due to so much of the natural oil and moisture being removed in the dyeing and drying of the stock.

Cotton not sufficiently dried will be hard to get to run even on the drawing frames, and is followed through the roving processes with an abnormal amount of hard ends.

Lack of oil on top roll saddles as well as the tips of the top rolls tend to a lagging or dragging of these rolls and thus are a medium for the cause of hard ends. Roving tenders should by all means be watched and required to clean these top rolls as well as the steel rolls daily for good work, cleanliness and the avoidance of hard ends.

Opening the rolls more than the suggested amounts may be necessary, but many times not practical due to the laps on the steel rolls and the thin places that will be made in the roving and yarn if opened more than needed.

Using this short cotton, 15/16-inch, some frames have the stand blocks so made that real close settings are not possible, so the situation may be that his settings cannot be made to adhere to any certain standard, but to what the frames are primarily made for.

CONTRIBUTOR NO. 6985

As I See It

It has been said that when a man blames somebody else it is usually an indication that he, himself, has failed.

How very true!

The "buck-passer" is invariably trying to shift blame for his own mistakes and short-comings.

Whenever you hear a man blaming someone else, you are entirely correct in suspecting that somewhere along the line he himself has failed.

Apply that same principle to yourself. Before you start blaming the other fellow, honestly search the causes and see if you have not shared somehow in the failure.

If you start to blame the other fellow, you may be sure that you thereby give others reason to suspect you of having fallen down somewhere.—*Glenn Gardiner in "Management Information".*

Width of Card Feed Plate

Editor's Note: "CONTRIBUTOR NO. 6886" *asked on page 95 of the December 1938 issue, "What width face card feed plates are recommended for use with cotton staples of 1-inch, 1 1/32-inch, 1* 1/16-inch, 1 1/8-inch, *and 1 3/16-inch. Two answers appeared in the June issue.*

EDITOR COTTON:

This is in answer to "CONTRIBUTOR NO. 6886" and his question on the width of face on card feed plates. A 40-inch feed plate is the standard, with a width face of 1-inch, and this can be set to take care of cotton up to 1¾-inch staple. It is 1¼ inches from the center of the feed roll to where the licker-in takes hold of the stock, but it must be borne in mind that the licker-in does not cut the staple, but combs it until the feed roll turns it loose. When the feed plate is set to 12/1000-inch, it is ⅛-inch from the lip of the top part of the feed roll to the point where the licker-in takes hold of the stock.

There are two types of feed plates, straight-in and curved-upwards. The curved feed plate gives better results on the longer staple cotton. The straight-in plate causes trouble with the stock jerking in on staples from 1¼-inch to 1½-inch, unless more weight is added at the feed roll. I don't think it advisable to mix the staples of cotton as this makes uneven yarn.

If the distance from the feed roll to the licker-in is 1¼-inch or 1⅛-inch and the staple is 1½-inch or 1¼-inch, I would set the feed plate to 17/1000-inch and cut the speed of the licker-in to about 350 r.p.m. and card light and slow.

CONTRIBUTOR NO. 6891

EDITOR COTTON:

This has reference to the question on feed plates by "CONTRIBUTOR NO. 6886". There are two standard feed plates, the short nose plate and the long nose plate. I have had both in the same mill, was using both short and long (⅞ to 1¼-inch) staple cotton and made just as good work on one as on the other. This question, like most others, can be answered by the application of horse sense and experience. Even with the short nose feed plate I think this man will find it impossible to shorten the actual bite to 1¼-inch from the feed plate roll bite to the bottom of the plate. I have thought this bite may be shortened so the licker-in could comb out and parallel the fibers while they are still held by the feed roll, but think how few fibers are parallel in lap form to achieve this action. The greater number of fibers are parallel with the flutes of the feed roll so that both ends are released before the licker-in takes hold.

"CONTRIBUTOR NO. 6886" is wrong in mixing 1 1/16-inch and 1 3/16-inch staple as he will get a better break with straight 1⅛-inch staple if his speeds and settings are correct.

If he thinks he is injuring his staple at the licker-in, it will be well for him to experiment with licker-in speeds down to as low as 250 r.p.m. and somewhere he will find an improvement in his breaking strength. He could also try a different ounce lap. Keep the roving twists low and the tension on the fly frames constantly controlled.

CONTRIBUTOR NO. 6892

◆

EDITOR COTTON:

For the information of "CONTRIBUTOR NO. 6886", the machinery companies since about 1910 have been installing the combination feed plates on cards and these will process the various staples of cotton satisfactorily. We have run various length staples on our cards, using the same width face feed plate and have found that it works satisfactorily.

CONTRIBUTOR NO. 6890

Surface Active Agents

(continued from page 63)

etc.), then processed and examined either visually or optically (with instruments) for soil removal. This procedure is used in some manufacturers' laboratories but not in the average small mill. The laundries have for some time been using standard soil test pieces for checking the efficiency of wash baths or "breaks"—the soiled pieces are thrown in the wheel during a regular run of goods through the plant and given the same treatment as the materials being laundered. Afterward the test pieces are compared, visually or otherwise, with the same fabric in an original unsoiled condition. The test is rather simple and fairly conclusive and could be adapted for use in the average mill dyehouse and laboratory.

It seems a service would be rendered the textile industry if standard soil test pieces (in various fibers and constructions) were to be made available by some disinterested agency. The type of soiling composition could be varied according to the type of fiber and to the mill operations which would be undergone prior to wet-finishing; in this way mill conditions might be simulated. At best no great variety of test pieces should be required. Of course such a method of evaluating detergents is entirely physical and would involve some error; the results would be comparative rather than ultimate, and subject to human error, but improvement in technique would undoubtedly come from general use. In any event, there is no questioning that detergency is a dyehouse and bleachery requirement of utmost importance.

(The third and concluding installment in this discussion, to appear in an early number, will discuss wet-processing for Sanforizing, the newer cation active finishing agents, etc. —The Editors.)

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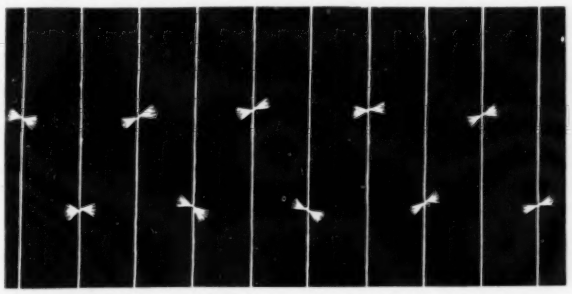

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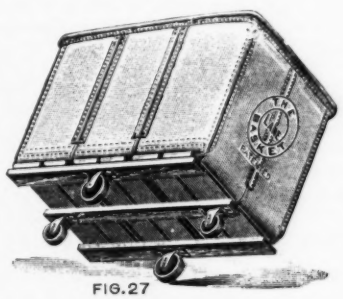

FIG. 27

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Some Views on Human Relations

EDITOR COTTON:

In this letter I am going to try to give some of my views about building up good relations between supervisors and operatives.

During the time that I have been employed in cotton mills I have observed two classes of people in executive positions: the drivers and the leaders. I have also observed that both types of executives obtain good results from their systems. From a psychological way of thinking, these methods of getting work done probably are not worth mentioning. I have often heard that results are the standard of measurement, and so long as they are satisfactory the method used is of little importance.

However, I doubt the truth of the above statement for several reasons. Executives cannot and should not always expect instant results. Progress is not always built upon force. There are several human factors which have to be studied and anticipated in order to reach our aims. Therefore I should say that methods should change according to the situation and should shift in response to shifts in the human equation.

There are various factors which the department head, the supervisor, and the foreman must always keep in mind when managing the activities of a department. If you are a driver the number of factors are decreased because your aim is to get things done at the cost of personal disfavor. This kind of leadership, I believe, is prejudicial to the organization in the long run. But if you are a leader the number of factors are increased because your aim is to get things done through friendly methods which create job-interest. This type of leadership requires time and patience.

Partiality and favoritism have no place in the conduct of good leadership. In order to be respected by men, one must always be impartial when dealing with the human factor.

The following are incidents which the writer of this article has observed, are made to give the reader material for discussion of the various methods employed in solving mill problems:

A sarcastic foreman always gives out his orders with threats of doing this and that. He never accepts any excuses for poor work, and he never takes the blame if he is to blame. He is always passing the buck to a man when things go wrong and he is called on the carpet for it. What do you think of such a man for a leader?

In one carding department the speeder tenders were in the habit of cutting off roving. The superintendent told the overseer that this practice would have to be stopped. The next time the overseer saw a man cutting roving he said, "The old man wants this to be stopped." Do you think the overseer solved this problem properly? How would you solve the problem if you were the overseer?

A new overseer ordered certain changes throughout his department. Production and quality decreased. The help became dissatisfied. The secondhand took the responsibility of changing things back the way they were before. Production and quality returned and the help again became satisfied. Was there any leadership displayed here? Did the secondhand do the right thing?

A superintendent suggests to his overseer new card settings. The overseer has one card set the way the superintendent has suggested. Then he shows the superintendent that the new setting will not work as well as the old one. The superintendent does not say anything for a minute; then he says, "All right, change it back the way it was set before." What kind of leadership has the superintendent shown?

A carding overseer refuses to discuss frequently with the spinning overseer the condition of the roving and so forth. He also tells his secondhands, "It does not matter what you do to improve the quality of the roving; you never satisfy these spinning overseers." What kind of an example does this overseer set to his secondhands?

A young overseer told me this surprising story. "When I obtained my first overseer job one of the first things the superintendent told me was this. 'Young man,' said the superintendent, 'in order to show your authority around your department it is sometimes necessary to fire some one once in a while'." Do you consider this good advice to a young overseer?

A secondhand, who always did dislike to include the reason why in his instructions, heard of some drastic rules, which would make his job more easy, used by one of his friends in another mill. He suggested some of the rules to his overseer. The overseer, after considering them, said to his secondhand, "I don't see why we should apply these trouble-making rules here. After all they will not bring us any satisfaction. On the contrary they will make lots of dissatisfied workers." Was this a good lesson to the secondhand?

A certain operative is always at odds with his foreman about the repairing of his machines. The foreman tries to have the operative fix his machines. The operative tells the foreman, "Look, my job is to run these machines, not to fix them." Finally the operative calls the overseer's attention and tells him the whole story. The overseer ignores the whole thing and the trouble between the two continues. Does the overseer do the right thing?

A secondhand goes to his overseer and says, "How do you want this job to be done?" The overseer says, "Well, how do you think it should be done?" They exchange views on the matter. Under the same conditions another overseer tells the secondhand just how to do the job. Which of the two overseers uses the better judgment?

I could go on and write more typical remarks. But I believe that the above-mentioned ones are enough to give the reader an idea of the various characteristics which are employed by certain mill men in solving their problems.

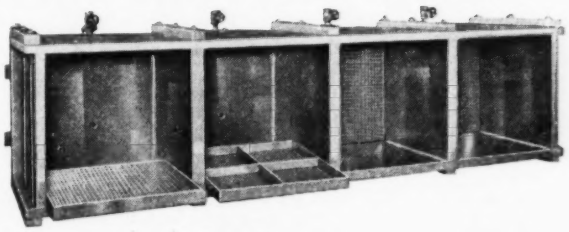
I should like to say a word to those who are not obtaining satisfactory results in human relationships. (1) We must always remember that we can not force a man to give a good day's work, but we can make him want to do it. (2) Let's not be so overloaded with dignity that we refuse to bend enough to get the confidence of the workers. When we are among people who live by the very fundamentals of life, we must remember that they have neither time nor money to waste; they make the best of what they have. To be one of them, to be friends with them, is a spiritual education.

CONTRIBUTOR No. 6988

MODERN EQUIPMENT

FOR ALL

TEXTILE MILLS



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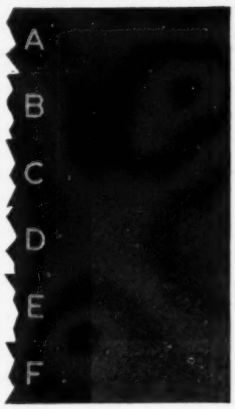

Here Illustrated

● This dyed purple fabric was exposed in steps in a Fade-Ometer. Side strip is unexposed color; A to F are consecutive exposures.

A had	3	Fade-Ometer	Hours		
B "	6	"	"	"	
C "	9	"	"	"	
D "	12	"	"	"	
E "	15	"	"	"	
F "	18	"	"	"	

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Picker Speeds and Settings

EDITOR COTTON:

"CONTRIBUTOR NO. 6926" has asked for some beater speeds and settings for 1-inch cotton, in his question on page 105 of the August issue of COTTON.

We are using the following speeds and settings on our one-process pickers, using 1-inch Mississippi and Arkansas cotton, and we believe we are getting good results.

Our pickers have been changed over from 3-process pickers to the single-process type. The first beater spike is set ¼-inch from the feed roll; second beater, 2-blade, set ¼-inch from feed roll; third beater, porcupine, set ⅛-inch from feed roll. The speeds of the first, second, and third beaters respectively are 700, 926, and 1150 r.p.m. The speed of the first fan is 1100 r.p.m., and the second fan 1050 r.p.m., and the third fan 1148 r.p.m.

The speed of the feed roll is 10 r.p.m. for first, and 13 r.p.m. for second and third feed rolls.

We run a 52-yard lap, 12-ounce, and at the first beater the blows are 12 to the inch, second beater 15 to the inch, and third beater 25 to the inch. Our pickers make a lap every 6.5 minutes. We use vertical openers doubled.

"CONTRIBUTOR NO. 6926" wishes to get a cleaner stock and better breaking strength. I suggest that he try the foregoing speeds and settings and then set 4 of his cards in the following manner:

Feed plate 15/1000-inch, flats 9/1000 all the way, doffer 7/1000, licker-in 7/1000, mote knives 10/1000; screen from cylinder back, 17/1000, middle, 34/1000, front 64/1000; back plate 17/1000, front plate 17/1000, top 22/1000, and doffer comb 12/1000-inch.

He should keep the stock from these 4 cards separate and run through the spinning. We believe these settings, along with the settings for the picker, will give him a cleaner and stronger yarn.

CONTRIBUTOR NO. 6976

Naphthol Dyes—

(continued from page 68)

colors. As in identifications of most colors for mill work, the reagents used are those common to the dye-house and bleachery.

If the dyed goods have been found fast to boiling soap, the vats, sulfurs, and naphthols are the only large groups to be considered. In some cases there are also a few other types such as Para and Alizarine reds which might have to be identified. A treatment in approximately a 3 degree Tw. solution of bleaching powder which has been weakly acidulated with hydrochloric acid, will destroy sulfur and direct colors and Alizarine red after a short time. Some vat colors also are slowly destroyed or changed in shade. If the dyeing is not decolorized, another portion should be heated with a solution of hydrosulphite and caustic. Most vat colors will show a material change of shade, but will return to their original color upon exposure to air. The naphthols, in practically every case, will strip down to a light yellow, and the original color will not reappear upon exposure to the air. Para red strips to a white in the reducing bath, and can be distinguished further from the other naphthols by the fact that it will sublime while the AS types will not.

The Old Card Doctor

Gives us some pointers on slubbers, and on having the proper weight on our top rolls . . . . .

AFTER HAVING OBTAINED an even finished sliver from the finisher drawing, we must keep up the good work by paying especial attention to the processing at the slubber. The lift roller, which serves the purpose of preventing stretch in the sliver as it is pulled from the cans and fed to the drafting rolls, should be positively driven and should have no lost motion. The trumpet into which the sliver is fed should be large enough so that the sliver will not be stretched and weakened in passing through it. It is also essential to have the traverse operating so that it carries the stock to the proper section of each roller; in my opinion the sliver should not come closer than 3/16-inch from the end of the boss of the roll.

Weight on the drafting rollers is an important factor, and should be considered in the light of the bulk to be passed through the rollers. I remember a fine goods mill that changed over to heavy fabrics, and in my opinion the weights were too light on the top rollers in the carding and spinning departments. A very unsatisfactory fabric was made, and after being dragged into the discussion of improving the work, I suggested increasing the weight on the top leather rolls on both fly and spinning frames. The result was a better quality of work and increased production There was much better drafting of the stock, and less ends down. We also placed enough twist in the slubber roving to prevent stretching in the creel of the intermediate.

In another card room I visited I noticed that the rolls were set to different spacings, even when the same hanks and same cotton were being run. Needless to say the spinning was running poorly. After making several suggestions, the carder had one frame worked over and paralleled the top rolls with the steel rolls, set the spacings of the rolls correctly, repaired his fliers, set the gears properly, and he increased the production of the frame from 1½ to 2 hanks per 8 hours.

On fly frames the roving should never be allowed to cross while passing between the top and bottom rolls as either a thick or thin place may occur. Especial attention should be paid to the creeling of the frames, and if necessary the operatives should be taught the proper method and then closely supervised.

THE OLD CARD DOCTOR.

"FINISHING MATERIALS"

A complete . . .
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more practical . . .
and enlarged . . .

Handbook for Finishers

THE first edition of "Finishing Materials" was so well accepted and appreciated throughout the finishing industry, that it was necessary to produce a second edition—which is just off the press. In this new edition, a number of subsequent articles by the author, J. Andrew Clark, were added to the original book; thus broadening its scope and making it even more useful to Finishers.

All of the material—both original and new—provides a source of unique information and experience to the operating executive. It is fresh, up-to-date and most practical for use in everyday plant operation. In general, the book now covers those basic raw materials used in the finishing processes for cotton piece goods and newly added chapters dealing with the most recent developments in permanent finishes, bleaching, mercerization, laboratory work, etc. In addition, it includes newer materials and practices not found in standard text books.

In connection with a discussion of the uses of these materials in the plants the author has interestingly rendered something of the source, background and production of these finishing agents.

All of this information is now available in this second edition, in convenient book form, bound in durable red imitation leather. Finishers will welcome its many practical uses. It contains 55 more pages than the original volume—168 pages in all—and is well illustrated.

"Finishing Materials" can be obtained only in conjunction with a 3-year subscription to "Cotton" for $3.00 (Canada $4.50—Foreign $6.00).

COTTON

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What the Southern Mills Are Doing

The following types of textile plants were located in the State of North Carolina during the first eight months of 1939: Dyeing and finishing 5, hosiery 16, knit goods 2, cotton goods 2, cotton yarns 2, silk and rayon 1, and miscellaneous 1. Additions to plants were: Dyeing and finishing 5, hosiery 30, knit goods 3, silk and rayon 5, cotton goods 8, cotton yarn 5, miscellaneous 4.

Fairforest Finishing Company, Spartanburg, S. C., have let a contract for an addition to house new dyeing machinery and offices. About 14,000 square feet of space will be added. Lockwood-Greene, Inc., Spartanburg, S. C., are engineers, and Fiske-Carter Construction Co., Greenville, S. C., are contractors.

It is understood that Hesslein & Company, New York, may lease and operate the Marlboro Cotton Mills, Bennettsville, S. C., for a period of three years. The new concern probably will manufacture narrow sheetings for the present, but will diversify later to make twills, drills, sateens, etc.

West Point (Ga.) Manufacturing Company will make two additions to its plants. A new cloth room and storage warehouse will be built at the Langdale (Ala.) plant and an addition made to the cloth room at the Fairfax (Ala.) plant, which will increase floor space by about 18,000 square feet.

Springs Cotton Mills are starting a building program totaling $375,000, including 50 new houses at Springstein Plant at Chester, and enlarging spinning and carding departments; building of 43 new houses at Fort Mill, and 30 at Lancaster, S. C.

Darlington (S. C.) Manufacturing Company have offered for sale 180 village homes to the present occupants. It is understood that thus far about half of the homes offered have been purchased by the employees of the mill.

Nantex Manufacturing Company, Greenwood, S. C., will move offices from New York City to Greenwood. When annex now under construction is completed, capacity of the Greenwood plant will be doubled.

Cedartown (Ga.) Textiles, Inc., have completed installation of a new high speed tenter dryer, manufactured by Philadelphia Drying Machinery Co., sold by F. W. Warrington Co., Charlotte.

A. French Textile School, Georgia School of Technology, Atlanta, has installed new type looms for tapestries and toweling; also a new controlled draft slubber has been installed.

The Textile School of the Alabama Polytechnic Institute, Auburn, Alabama, has installed a 10-pound package and raw stock dyeing machine, and a new Model X loom.

High Point (N. C.) Weaving Company of Burlington Mills, is building a one-story addition 75x165 feet to be used as a warehouse, at a cost of $40,000.

Dixie Mercerizing Company, Chattanooga, Tenn., are building an addition costing $32,000, with Robert & Co., Inc., Atlanta, Ga., engineers, and Mark Wilson Co., Chattanooga, contractors.

Buck Creek Cotton Mills, Siluria, Ala., are installing new equipment consisting of Lummus Gyrator and Aldrich synchronized single-process picking.

Morgan Cotton Mills, Quitman, Ga., are re-opening after being closed for several years. Ralph Sanders of Laurel Hill, N. C., is in charge of operations.

Gastonia (N. C.) Combed Yarn Corporation has completed an addition of 125x250 feet to house the finishing department of the Clara Mill. Machinery has been installed.

It is understood that J. T. Bates Company, Dalton, Ga., bedspread manufacturers, will build a new modern factory.

Glen Raven (N. C.) Cotton Mills will build a weave shed costing $20,000, with Bryan & Bayliss of Burlington handling the contract.

Icard (N. C.) Cordage Manufacturing Company is building an addition 40x75 feet to be used as stock and shipping room.

The new three-story addition at the Lanett (Ala.) Bleachery and Dye Works provides about 30,000 square feet of additional floor space.

A local committee of Selma, Ala., is negotiating with the American Velvet Company, Stonington, Conn., to establish a plant at Selma.

Pacolet Manufacturing Company, New Holland, Ga., has begun operating the new Sanforizing equipment, recently installed.

Fickett Cotton Mills, Inc., Whitehall, Ga., it has been reported, has started operations manufacturing cotton yarns, mops, etc.

Cannon Mills Company, Kannapolis, N. C., is building five 2-story warehouses 100x50 feet.

Assets of Kinston (N. C.) Textile Mills, Inc., have been sold to A. L. Thurston of New York City for $81,000.

Dacotah Cotton Mills, Lexington, N. C., have resumed operations after being closed since last June.

Graniteville (S. C.) Manufacturing Company is constructing an addition costing $100,000.

The Mary Louise Mill, Mayo, S. C., will re-open and 24 spinning frames will be installed.

S. Slater (S. C.) & Sons, Inc., are installing new equipment, including Bahnson humidifying system.

Profile Cotton Mills, Jacksonville, Ala., has re-opened. This plant has been closed since last January.

Puritan Cordage Mills, Inc., Louisville, Ky., has erected a one-story addition costing $30,000.

Jackson County Woolen Mills, Inc., Pascagoula, Miss., will build an addition costing approximately $75,000.

Armstrong Mill, Gastonia, N. C., has built an addition 30x100 feet to house additional carding machinery.

Koroseal Table Covers

Koroseal is now being used to coat cotton tablecloths to render them impervious to ink and other damaging stains, according to the Sunlite Manufacturing Company, Milwaukee, Wis. Large scale production of the coated tablecloths has already begun. It is predicted by Sunlite that a new low in household laundry bills will be effected.

Cross-Index for "Cotton"

The Cross-Index for all articles appearing in "Cotton" for the year 1939 will be ready for distribution January 1. These may be secured without charge by subscribers having all 1939 copies.

. . . HELPFUL BOOKLETS FREE . . .

Here is presented an important service used every month by hundreds of COTTON readers. The listings explain themselves. The Manuals, Reference Books and Catalogs, containing information of unusual value in mill construction and operation, will be sent you without obligation. Read through the list carefully. Then simply fill in on the coupon the number of those which interest you, and mail it to COTTON.

This service is for men engaged in textile manufacturing only. Requests received from those not in the industry cannot be handled.

Advertisers in this Issue Offer You . . . . . .

205. The Walker Method—8 page illustrated catalog describing the Walker method of quickly checking the efficiency of machinery. This improved method eliminates the losses resulting from improperly adjusted equipment. Walker Electrical Company, 926 Means St., Atlanta, Ga.

213. Saco-Lowell Cotton Machinery—Twisting—a 36 page illustrated brochure explaining the company's twisters and parts, including the four basic type twisters, features of new construction and general notes on twisting. Production calculations and specifications are included. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

214. Saco-Lowell Cotton Machinery—Spinning—the second edition of a 56-page booklet, illustrated with the company's product and containing valuable charts, production tables and other spinning data. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

217. Diamond Fibre Hollow Ware—32 page booklet and catalog attractively illustrated, showing various types of boxes, trucks, cans, barrels, baskets and trays of Diamond Fibre Hollow Ware. Of interest to every mill man in solving material handling problems. Free on request. Continental-Diamond Fibre Co., Dept. C, Wilmington, Delaware.

218. Butterworth Electric Guiders—6-page folder describing and illustrating the new Butterworth Electric Cloth Guider. This guider is built on the same principle as the Foxwell Air Guider and is unexcelled for fast, accurate guiding. H. W. Butterworth & Sons Co., Philadelphia, Pa.

223. Alloyed Iron in Southern Industrial Fields—16 page illustrated catalog dealing with the properties available in modern cast irons. International Nickel Co., 67 Wall St., New York, N. Y.

224. "Tank Talk"—Sixteen page booklet of illustrations showing various types of elevated steel tanks, constructed and erected by manufacturers as well as stand pipes, reservoirs, storage and high pressure vessels, cylinders, along with helpful technical data. Also a list of what a few of the cotton mills, etc., said. R. D. Cole Manufacturing Company, Newnan, Georgia.

233. Catalog No. 22—an attractive illustrated catalog describing in detail the Shamrock shipping containers and the new canvas trucks for textile use. Meese, Inc., Madison, Ind.

234. They Stay Brighter Longer—This interesting illustrated booklet containing facts about Mazda lamps will be sent you free on request. General Electric Company, Dept. 166, Nela Park, Cleveland, Ohio.

238. Glorified Light—A 32-page book illustrative of the vital part proper painting plays in scientific lighting and in the reduction of maintenance and production costs. Pittsburgh Plate Glass Co., Pittsburgh, Pa.

240. The New Proctor Automatic Yarn Dryer—6 page illustrated folder describing the new Proctor automatic yarn dryer which has the exclusive new Proctor traveling skein protector. Proctor & Schwartz, Inc., Philadelphia, Pa.

253. Brown Air-O-Line Controllers — This booklet will prove invaluable to the men in charge of dyeing, finishing and slashing, as well as the textile executive. 32 illustrated pages describing the various Brown Controllers. The Brown Instrument Co., Philadelphia, Pa.

258. Automatic Overhead Cleaner for Spinning, Winding, Warping and Twisting—24 page booklet showing the new American MonoRail automatic cleaner in operation on MonoRail track circuit over Spinning, Warping, Winding, Twisting, etc. This cleaner incorporates a new scientifically designed blower producing a whirling column of air directed and controlled so that it prevents accumulation of fly with no harm to roving. The American MonoRail Company, Cleveland, Ohio.

259. Cotton Conditioning with Texspray Compound — 18-page booklet describing the Texspray method of cotton conditioning. It has been proven that this method will save money, increase production, increase flexibility of fiber, eliminate static and reduce fly and dust. The Texas Company, New York, N. Y.

260. Lubrication—This attractive booklet contains valuable and interesting articles on loom lubrication and also on spinning design and the function of spindle oils. The Texas Company, New York, N. Y.

261. The Brown Moist-O-Graph—16 page booklet describing the Brown Moist-O-Graph which measures, records and controls the moisture content of cotton warp yarns. The Brown Instrument Company, Philadelphia, Pa.

263. Gastonia Brushes—New catalog and price list showing the complete line of brushes for the textile mill. Gastonia Brush Co., Gastonia, N. C.

269. Stainless Steel Equipment for the Dyeing and Textile Industry—Attractive four-page folder describing the Blickman line of dyeing equipment. S. Blickman, Inc., Weehawken, N. J.

271. The New American Adjustable Diameter Wedgebelt Pulleys—Illustrated leaflet describing the American adjustable diameter sheaves designed to produce the best performance in all types of V-belt driven textile machinery. American Pulley Co., Philadelphia, Pa.

272. Where to Buy Monel Metal Textile Equipment—Attractive booklet which lists the names and addresses of experienced fabricators of Monel Metal equipment for the textile mill. The International Nickel Company, Inc., 67 Wall St., New York, N. Y.

284. Morton Nickel Iron Quick Opening Handle Gate Valve—Illustrated leaflet describing the new Morton Valve for dyeing machines, pipe lines, steam and water lines, boiler blower valves and throttle valves. Manufactured in nickel, stainless steel and stainless steel trim. Morton Machine Works, Columbus, Georgia.

286. Triton W-30—Study of wetting agents and their activity with recommendations for textile processing. Rohm & Haas Co., Philadelphia, Pa.

287. New American Pulley Motor Base Catalog—an attractive new illustrated catalog describing in detail construction and application of new tension control motor base. Includes data comparing performance of drives with and without tension control motor base and applications are shown for both flat and V-belt drives. American Pulley Co., Philadelphia, Pa.

289. Caustic Soda Bulletin—a data and reference book designed for the user of caustic soda. Complete with charts, drafts and formulas. Pennsylvania Salt Mfg. Co., Philadelphia, Pa., who also manufactures Hydrogen Peroxide.

290. Hyatt Roller Bearings on Textile Machinery of All Kinds—34 page booklet which describes and illustrates how Hyatt bearings are being applied to textile machinery. Hyatt Bearings Division, Newark, New Jersey.

295. Fence Facts—A new booklet illustrating and describing chain link fence in a variety of styles and four different metals for every type of fencing installation. Also wrought iron fence in various beautiful styles. A concise handling of information for those wanting facts about fence. Page Fence Association, Bridgeport, Conn.

296. Full Fashioned Hosiery Manufacture — Illustrated folder giving the history of full-fashioned knitting and describing in detail the different processes in present day manufacturing and the application of Gulf lubricants to the various machinery. Gulf Oil Corporation, Pittsburgh, Pa.

297. Lunkenheimer List Price Schedule R-I—new 44 page catalog covering the entire line of valves, boiler mountings and lubricating devices manufactured by the Lunkenheimer Company. The Lunkenheimer Company, Cincinnati, Ohio.

299. The New International Time Recorder—information on the new automatic time recorder which gives complete wage and hour records. International Business Machines Corp., New York, N. Y.

301. Norma-Hoffmann Bearings Catalog — Norma-Hoffmann Bearings Corp., Stamford, Conn.

305. Tannate Belting — leaflet describing Rhoads Tannate leather belts and their uses and advantages in textile mill operation. J. E. Rhoads & Sons, Philadelphia, Pa.

306. Waterproof with Sco-Co—information on the advantages of using Sco-Co industrial finishes and paints in the textile industry. Southport Paint Co., Inc., Savannah, Ga.

307. Lane Canvas Baskets—16 page illustrated booklet describing the Lane line of canvas baskets for textile use. W. T. Lane & Brothers, Poughkeepsie, N. Y.

308. Finnell Scrubbers—Illustrated leaflets describing and giving specifications for the new Finnell floor scrubbing machines. Finnell System, Inc., Elkhart, Ind.

311. The Romance of Prairie Gold—attractive illustrated book which tells the story of corn and the uses of corn products in industry. Corn Products Sales Co., New York, N. Y.

312. Cork—The Modern Roll Covering—attractive booklet outlining the uses and advantages of cork for textile roll covering. Armstrong Cork Products Co., Industrial Division, Textile Products Section, Lancaster, Pa.

314. Winding Production Chart—this useful production chart can be used for any style of winder. Also included are instructions for figuring yarn takeup speeds. Universal Winding Co., Providence, Rhode Island.

315. How Handling Problems Have Been Solved—a 50-page booklet presenting in pictorial form many solutions to industrial handling problems and showing how they reduce costs, save labor, eliminate storage and provide free movement of stock between processes. American MonoRail Company, 13106 Athens Ave., Cleveland, Ohio.

317. Circular Knitting Machines—a fifty-two page illustrated booklet containing valuable information on the manufacture of transfer top hosiery. Includes illustrations of rib knitting principles, yarn changers, selvage welt, loose course and methods of laying in Lastex. Sent free on request to Fidelity Machine Company, 3908 Frankford Ave., Philadelphia, Pa.

318. It's the Film—attractive folder describing and giving specifications for Lubriplate, the lubricant possessing features not found in conventional lubricants. Lubriplate Division, Fiske Bros. Refining Company, Newark, N. J.

319. Lubriplate—the modern textile machinery lubricant—attractive illustrated folder giving recommendations for textile machinery lubrication. Lubriplate is the new lubricant which forms a film on shafts, bearings, gear teeth, etc., which prevents wear, corrosion and contamination due to products of wear. Lubriplate Division, Fiske Bros. Refining Company, Newark, N. J.

320. The Control of Friction—four-page folder which shows why Lubriplate controls friction on textile machinery. Lubriplate Division, Fiske Bros. Refining Co., Newark, N. J.

321. Wooden Tanks for Many Purposes—attractive catalog containing much helpful data relative to general design and construction of wooden tanks for textile use. Also contains an interesting tabulation of experiments with different woods available for tank purposes. Hauser-Stander Tank Co., Cincinnati, Ohio.

322. The Application of Soaps and Soap Products to Textile Processing—40-page illustrated booklet covering the principal operations in textile processing. Special notes and suggestions are given for those operations requiring soaps or soap products. Colgate-Palmolive-Peet Company, 105 Hudson St., Jersey City, N. J.

323. Textile Processing with Artic Syntex A and T—50-page illustrated booklet describing the properties of these new materials and giving tentative or suggested formulas for a number of applications in textile processing. Colgate-Palmolive-Peet Co., Jersey City, New Jersey.

325. Protection for Your Humidifier Motors—literature describing the Walker fusedron which completely eliminates rewinding your humidifier motors. Walker Electrical Co., Atlanta, Ga.

327. Sanforizing Machinery—Illustrated booklet describing the sanforizing machinery offered by the Textile Finishing Machinery Co., Providence, R. I. This bulletin is available only to finishing plants or executives thereof.

328. SKF Ball and Roller Bearing Transmission Appliances—84 pages, 100 illustrations, descriptions and dimensions of universal, unit, split and roller bearing pillow blocks, ball bearing drop and post hangers, take-up boxes. Suggestions and dimensional and load data for bearings also given. SKF Industries, Inc., Philadelphia, Pa.

330. Tools for the Textile Trade—a twelve-page booklet illustrating and describing specially selected tools for all textile mill departments—Loom Fixers, Spinning Room Fixers, etc. Snap-On Tools Corporation, Kenosha, Wisc.

331. Unbrako Self-Locking Hollow Set Screw—Bulletin Form 532 includes illustrations and descriptive matter of this latest improvement in socket set screws. This bulletin also features the complete line of "Unbrako" Socket Screws. Standard Pressed Steel Co., Jenkintown, Pa.

332. Hard Maple Flooring—an 8¼ x 11-inch folder featuring a close-up of Northern Hard Maple Flooring and specimen pieces to show grades, prepared for the convenience of architects, builders and others when considering flooring grade requirements. Maple Flooring Mfrs. Assn., 332 South Michigan Ave., Chicago, Ill.

333. Fafnir Ball Bearings for the Textile Industry—Outlining the applications and advantages of ball bearings on textile machinery. Fafnir Bearing Co., New Britain, Conn.

334. Precision Winding for Silk and Rayon Yarns—Describes the new No. 50 Lessona Winder and all attachments that are used for silk hosiery threads and rayon yarns. Universal Winding Co., P. O. Box 1605, Providence, R. I.

335. Casters and Wheels—192 pages, describing casters and wheels suitable for all types of industrial application. Every mechanical engineer and purchasing agent should have this. Darnell Corp., Ltd., P. O. Box 4027-N, Station B, Long Beach, Calif.

337. Sizing and Finishing—A pamphlet which will give the mill man an understanding of starch properties which will lead to greater efficiency in sizing and finishing. Stein, Hall & Co., Inc., New York City.

338. Thickening Materials for Textile Printing—Describing materials and methods employed in preparation of color thickening so that it may be properly and economically transferred to cloth through the medium of the printing machine. Stein, Hall & Co., Inc., New York City.

339. Diehl Textile Motors—a 12-page booklet illustrating various types of installations on textile machinery and equipment and describing the different types of Diehl Motors as well as Diehl Grinders and Fans. Address Textile Dept., P. N. Thorpe & Co., 267 5th Ave., New York City.

340. Notes on Cotton Warp Sizing—a 45-page handbook giving valuable data on the purposes and properties of various sizing products, their uses and preparation, with much information on the operation of slashing equipment. Will help solve many sizing problems. Address The Hart Products Corp., 1440 Broadway, New York City.

CONTINUED ON PAGE 116

HELPFUL BOOKLETS FREE...

Continued from Page 115

343. SKF Better Spinning and Twisting—16-page illustrated catalog containing technical information relating to construction and performance of SKF roller bearing spindles, tension pulleys, guide and idler pulleys and miscellaneous pulley and bearing applications. Distributed by all leading textile machinery manufacturers and SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Pa.

344. Artday Fluorescent Lamps—Attractive folder describing the Macbeth fluorescent industrial fixtures for better seeing, inspection, color grading and color merchandising. Includes complete detail as to sizes and uses in industrial plants. Macbeth Daylighting Corp., New York, N. Y.

345. The New Air-Cooled Color Matching Skylight—Illustrated leaflet describing the new air-cooled Macbeth BKX83 color matching skylight which is the last word in color matching and color identification equipment. Macbeth Daylighting Corp., New York, New York.

346. Dependable Finishing for Modern Elastic Top Hosiery—describing and illustrating equipment for basting and attaching insert elastic, attaching wide or welt elastic and seaming elastic in women's hosiery. Union Special Machine Company, 400 North Franklin St., Chicago, Ill.

347. Rhoplex Resins—Attractive folder discussing the outstanding properties of these Aqueous Dispersions with suggestions for their application to textiles. Rohm & Haas Co., Inc., Philadelphia, Pa.

348. Johnson Ledaloyl Bearing Bronze—Illustrated booklet telling the complete story of Johnson Ledaloyl Bronze, the newest development in self-lubricating bronze for textile bearings and bushings. Johnson Bronze Company, New Castle, Pa.

349. Preview—12 page illustrated booklet describing the Best Universal Locking System which features the interchangeable core and offers a solution to locking problems. Best Universal Lock Co., Indianapolis, Ind.

350. Theoretical and Applied Silk-Soaking—Attractive 28-page booklet outlining methods of silk-soaking and outlining investigations on the soaking, backwinding and degumming of silk. Hart Products Corp., New York City.

351. Wetsit—Leaflet describing Wetsit, a synthetic aromatic compound with excellent surface tension reducing properties; gives rapid wetting out and thorough penetration; available in three strengths. Jacques Wolf & Co., Passaic, N. J.

352. Lupomin—Leaflet describing Lupomin, a new cation active softening agent for all textiles but especially acetates and rayon crepes; odorless, permanent and easily applied; imparts soft, full feel. Jacques Wolf & Co., Passaic, N. J.

353. Luposec—Leaflet describing Luposec, a waterproofing agent with great stability; soluble in cold or warm water at all temperatures; suitable for all fibres and especially effective in splash-proofing silk hosiery. Jacques Wolf & Co., Passaic, N. J.

354. Vacuum Cup Pulleys—Leaflet describing the new Vacuum Cup Pulley which gives greater production, less power cost, less maintenance cost, and much longer life to belts and bearings. Vacuum Cup Metal Pulley Company, Inc., Detroit, Mich.

355. Air Conditioning in Cotton Spinning—A technical discussion of the need of adequate humidification and controlled air change in the spinning room of the textile mill of today. Ask for Bulletin 539. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, North Carolina.

356. Parks Textile Specialties—A 14 page bulletin with brief descriptions of the Parks line—Automatic Airchanger—Central Station and Unit Air Conditioners—High Duty, Turbo and Turbomatic Humidifiers—Automatic Regulation—Traveling Cleaners—Portable Dustless Card Stripper—Humidifier Valves and Accessories. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, N. C.

357. Caro-Gant—The Original 100% Active Warp Dressing. Attractive folder describing Caro-Gant the Warp Dressing that makes stronger more elastic warps with a maximum breaking strength and a minimum reduction in elasticity. Hart Products Corp., New York City.

358. Rhonite Emulsions—Attractive bulletin describing the Rohm & Haas complete line of Urea Formaldehyde Resins for Textile Finishing. Rohm & Haas Co., Philadelphia, Pa.

359. Service Characteristics of Gate and Globe Valves—This bulletin contains valuable information on the procedures to follow in the selection of valves for almost every flow control problem in the textile industry. Crane Co., Chicago, Ill.

360. Sonoco Products—A 60 page illustrated booklet giving descriptions, specifications and charts of the many Sonoco paper carriers, including bobbins, cones, tubes, cork cots, roving cans, spools, rolls, etc. Sonoco Products Co., Hartsville, S. C.

361. Thaumaphos — The textile detergent — Seven page booklet describing Thaumaphos, the wonderful phosphate. Included is a list of the Thauma brands and a survey of their uses in the wet finishing of textiles. Detergent Products Corp., Atlanta, Ga.

362. Leather Belting Calculator—Handy and attractive calculator for determining belt speeds, horsepower per inch of belt widths, etc., will be sent free on request. J. E. Rhoads & Sons, Philadelphia, Pa.

29. Continuous Card Stripper—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shop, 147 Milk St., Boston, Mass.

30. Lubrication of Textile Machinery—32 pages illustrated. Data covering the economical lubrication of all textile machines. New York & New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

62. Rubber Products for the Textile Industry—A 40 page booklet giving a wealth of information on the proper selection, installation and operation of rubber belts, together with charts, showing horsepower rating, pulley sizes, V-belt sizes, also information on all types of hose and rubber covered rolls used in the textile industry. Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J.

64. SKF in the Cotton Mills—24 page bulletin describing bearing installations for practically every machine in the textile industry including roller bearing spindle and tension pulley. SKF Industries, Inc., Philadelphia, Pa.

65. Bulletin No. 500. Cooper-Hewitt Industrial Illumination—booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Electric Vapor Lamp Co., Hoboken, N. J.

77. Bulletin S 200—Illustrating and describing the new Reeves variable Speed Drive for spinning and twister frames, explaining its many distinct advantages and giving charted results of exacting tests. Reeves Pulley Company, Columbus, Indiana.

88. Dayton Cog Belt Catalog—A 32 page booklet full of vital information on power drives, plainly and simply assembled and arranged so that anyone can select the proper standard drive for any condition. It also provides data for the calculation of drives where acquired. The Dayton Rubber Mfg. Co., Dept. C-11, Dayton, Ohio.

110. 3-in-One Oil for Industrial Uses—showing the many industrial uses and advantages of this oil. A. S. Boyle Co., Jersey City, N. J.

116. Arcy—Telling in an interesting way the story of Arcy, which completely liquefies ordinary thick boiling pearl starch and its many advantages. Drake Corporation, Norfolk, Va.

117. Anti-Friction Bearings as Applied to Spinning, Drawing and Twisting Frames—This bulletin shows with detailed drawings how a simplified design of roller bearing applications is made to replace the plain babbitt bearings and lists the advantages that are gained. It deals primarily with better continuous production and in consequence freedom from equipment care and repairs. Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.

120. Goodyear Mechanical Rubber Goods Catalog—40 page catalog giving practical information and tables helpful in the selection of the proper belting, hose or packing to suit the requirements of the mill. Goodyear Tire & Rubber Co., Akron, Ohio.

128. Houghton's Hand Book for the Hosiery Dyer—This book contains the result of 69 years of experience in research and development of processing materials for the textile industries, together with a wealth of other data useful to every hosiery dyer. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

139. Textile Detergents—Theory of the use of alkalis and control of pH—This 32 page booklet explains in simplified manner for the benefit of the layman the chemical processes that take place in using textile detergent in the finishing of textile goods. It contains many useful tables and data. Detergent Products Corp., Peachtree Bldg., Atlanta, Ga.

141. V-Belt Engineering Data Book—Over 50 pages of pertinent engineering information including data on selecting a V-belt drive design of special V-belt drives, numerous standard tables, charts and belt and sheaves list prices. Manhattan Rubber Manufacturing Div. of Raybestos-Manhattan, Inc., Passaic, N. J.

154. Johnson Bronze Bulletin No. 340—showing over 800 sizes Johnson general purpose bronze bushings. Johnson Bronze Co., New Castle, Pa.

155. Link-Belt Catalog 1574 on the P. I. V. Gear—giving details of this positive variable speed control. Link-Belt Co., 307 N. Michigan Ave., Chicago.

156. Link-Belt Engineering Data Book No. 125—showing features and giving engineering data on Link-Belt silent chain drive. Link-Belt Co., 307 N. Michigan Ave., Chicago, Ill.

157. Grading Rules and Complete Specifications for Laying and Finishing Maple Floors—Maple Flooring Manufacturers' Association, 1794 McCormick Bldg., Chicago, Ill.

163. Roto-Koner—Bulletin describing the new No. 44 Universal Winder, known as the Roto-Koner for winding knitting yarns, which has many new and distinctive features. Universal Winding Company, P. O. Box 1605, Providence, R. I.

164. Johnson Rotary Pressure Joints—Bulletin describing the rotary pressure joint which requires no packing, no lubrication and no adjustment, giving installation and maintenance instructions, types, sizes, dimensions and prices. The Johnson Corp., Three Rivers, Mich.

168. The Tube-Tex for Tubular Knit Goods—Bulletin describing this modern machine which extracts, processes, dries, conditions and folds in one continuous operation, lowering costs, saving labor, power, space and waste. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

170. Gates Textile Accessories—showing the increased efficiency and economy to be secured through the use of Gates cone belts, evener belts, card bands and loom binder cushions. The Gates Rubber Company, Denver, Colo.

171. Design of V-Belt Drives—48 page booklet full of valuable tables and data showing the type, number and design of V-belts that will give the greatest efficiency on each particular drive. The Gates Rubber Company, Denver, Colorado.

176. Sonoco Products—A 60 page illustrated booklet giving descriptions, specifications and charts of the many Sonoco products, including bobbins, cones, tubes, cork cots, roving cans, spools, rolls, etc. Sonoco Products Co., Hartsville, S. C.

184. Speed Control Handbook T-35—new reference book in variable speed control, said to be the most complete and helpful book on this subject ever published. 112 pages and more than 200 illustrations of interest to every production executive, purchasing agent, superintendent, overseer and master mechanic. Reeves Pulley Co., Columbus, Ind.

185. Dulux—The White Finish That Stays White—New book describing the new ten-point finish for factory walls and ceilings, the finish that stays whiter, stays cleaner and stands repeated washings. E. I. du Pont de Nemours & Co., Finishes Division, Wilmington, Del.

187. The Wildman Single-Head Full-Fashioned Hosiery Machine—Literature on request from the Wildman Mfg. Co., Full Fashioned Division, Norristown Pa.

188. Form 496—This form enables you to gather your own cost data on your sewing machines and determine whether new Union Special Machines will show big savings. Furnished free by Union Special Machine Co., 400 No. Franklin St., Chicago, Ill.

COTTON, Grant Bldg., Atlanta, Ga.

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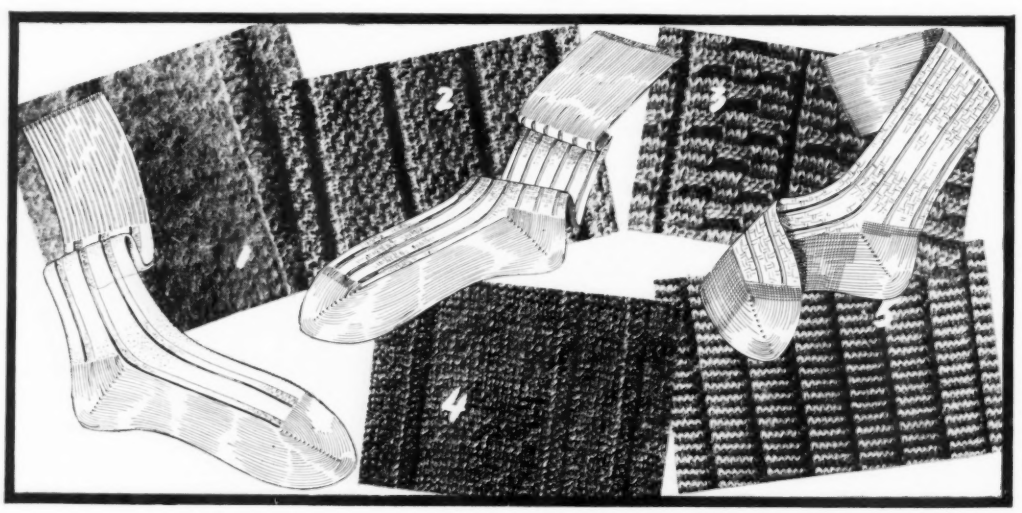
KNITTING CIRCULAR

Backbone of the men's hosiery market, and the market for women's and children's sports hosiery, too, is the ribbed sock. The reasons are evident. Ribs are smart, neat, attractive, comfortable, durable. The way they fit alone assures perennial popularity. This year ribs are appearing in a surprising variety of widths, combinations and color effects. Ribs in all sizes and price brackets. Heather mixtures in broad ribs. 6x3 ribs with fine, horizontal stripes. Ribs with stripes from a half an inch wide to a hair line. Ribs of alternating colors. Hand embroidered ribs. Ribs with clocks. Ribbed wool socks for evening wear—endorsed by Esquire. Full length, heavy ribbed wool hose for winter sports and resort wear. Town socks with ribs an inch wide. Ribs everywhere with the good old 6x3 the king pin of the set-up. In this month's Knitting Circular we are showing a few of the styles that indicate which way the trend is going. The items illustrated were selected after a tour of investigation in the New York retail market, during which many buyers, shop managers and salespeople were interviewed.

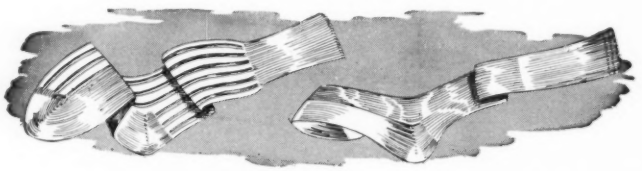
BROADER RIBS IN DEMAND

First of the socks shown in the group is a fluffy wool sock for sports or country wear. It has a rib nearly an inch wide — 9x3 — and the color is a beautiful pastel blue. This is the type of hose that goes well with the new "gummies"—the men's shoes with the gum cushion soles over an inch thick. Next to this is another broad rib sock suitable for both town and country wear —a purple tinted worsted sock with a 10x4 rib, into which a special Links-and-Links design has been knitted to create a rich, braided effect. Number three is also a Links-and-Links pattern on a 13x3 rib about three-quarters of an inch wide. This pattern is especially interesting, being similar to a basket weave but a new variation of that theme. The colors are slate blue and white—and richly distinctive. Number four is a plain blue wool 6x3, distinguished by an inch wide panel rib in clock position—an effective break-away from the established pattern. The fifth item is a beautifully designed and knitted 6x3 for both town and country wear. This is a medium heavy wool in a mixture of light blue, dark blue and gold, one that harmonizes perfectly with the tweed country effects that are being worked out in men's town clothes and which are enjoying a growing popularity.



OLD STANDBYS— AND POPULAR NEWCOMERS

For volume selling and good steady profits nothing beats the plain color ribbed sock—especially the 6x3. Next in this line are the two items shown here. The



first is a plain maroon lisle with a closely knit 10x10 rib which stands out in bold relief. The next is a plain dark blue 2x2 ribbed sock that sells in uninterrupted volume in the lower priced brackets. This 2x2 rib is extremely popular, too, in anklets for both women and children—and in a knee length sock for children which was featured in last month's Knitting Circular.

For merchandise that meets the demands for ribs, patterns and colors reviewed here the Scott & Williams Komet Machine and the S&W Komet Links-and-Links Machine are ideal.

SCOTT & WILLIAMS, INC., 40 Worth Street, New York, N. Y.

Established 1865

KNITTING SECTION

"Uncle Glory" and Avo

MR. AVO DU POIS had passed the 45th milestone on the road of life without a casualty. He had a bald head that shone like a new moon, a double chin, and a 50-inch waist-line which was so heavy that he had to rear back to carry it when he walked.

Avo had been a good "K" fixer in his day, but as refinements and new gadgets were added to this circular stocking machine from time to time, he didn't bother to keep himself posted and soon found he must look for a more conservative field of endeavor. He knew he should keep abreast with the development of the machine, but the temptation to drift with the tide was too great for him. "It's only a question of time," he consoled himself, "until all women's hose will be knit on full-fashioned machines." Nevertheless, he was not through with the hosiery mill; not yet. He could fix loopers as these machines are comparatively simple, and since he was easy to get along with—he was too lazy to be antagonistic—he was made knitting room foreman.

In quite a few circular hosiery mills the only qualifications required for a knitting room foreman are: A serene disposition, the ability to fix loopers, and enough elementary education to make out reports. It is not uncommon to find the foreman working for less money than first-class fixers. Lucky for Avo that he was connected with such a mill.

Our story begins on a hot, sultry day in June. Avo has returned to his modest office in one corner of the knitting room after having participated in a sumptuous noon repast in a manner that would make a husky woodman look like a dyspeptic. String beans, sliced tomatoes, creamed potatoes, roast beef, corn on the cob, two glasses of buttermilk and a large piece of juicy cherry pie to top off with; good substantial food for one doing manual labor, but pretty heavy for one doing sedentary work, especially with the thermometer registering 93 in the shade.

Our hero looked out the window sleepily at the well-kept lawn,

which ran the entire length of the mill building on the east side, and yawned lazily. "Ho hum-m-m. I ought to get to work on my pay-sheet," he mused. "Oh, well, plenty of time for that later." So, he swung slowly around in his swivel chair which he completely filled, placed his number nines on the edge of his desk with his legs stretched full length, leaned back in the swivel chair which seemed to groan under the excessive weight, and laid his hands leisurely over his bay-window." This was his favorite means of relaxation; it was good for the heart.

In the meantime, Uncle Glory Carr had brought the lawn mower, grass shears, and other auxiliary apparatus and placed it in front of Avo's office window as that was a good starting place, for he was preparing to give the lawn its weekly grooming.

Uncle Glory was decidedly of African lineage. Fate was responsible for his Christian name. He was the youngest of a string of Carrs; eleven to be exact. When it became definitely known that he was to be the caboose, Mammy Carr, who felt that she had done more than her share towards propagating her species, exclaimed joyfully, "Glory Hallelujah!" Thus, Glory Hallelujah became his legal moniker.

Uncle Glory was not a janitor by profession, but worked around the mill for a supplementary means of making a livelihood—a sort of necessary evil. He prided himself on being one of that noble profession which was inspired to spread the gospel to the four corners of the earth. Although he insisted that he had never preached for money, he admitted that the collection box was always available, and if any of the good brothers and sisters wanted to donate it was all right.

The old negro janitor sat on the ground in the shade of the building, which was slowly creeping across the lawn, and took plenty of time oiling his mower. As he supplied the motive power, he was liberal with the lubricating fluid lest the apparatus would require more power than was absolutely necessary. When he was satisfied that every moving part was in smooth running order, he donned his flopped hat, and reluctantly got to his feet. He took five minutes—more or less—deciding the most favorable course of action. Straight to the wire fence that enclosed the mill

grounds and return, that seemed to be the course which appealed to him most. In this way he could take advantage of the shade better; at the end of each cycle he could pause for wind and fan himself while the building protected him from the direct rays of Old Sol, who was bearing down just now without mercy. Thus, with the work at hand carefully planned for the maximum of comfort and the minimum of effort, the Reverend Glory started on his first lap towards the fence; clank, clank, whir-r-r-r!

In the knitting overseer's office, Avo had become quite comfortable in his relaxing position, so much so that he had dozed off to sleep. The sudden start of the lawn mower outside near his window aroused our hero. He jumped, blinked once or twice while coming out of the trance, and turned his head in the direction of the sound. It was only Uncle Glory mowing the lawn; so he took up where he had left off before he had been so rudely interrupted.

Shortly afterward Uncle Glory sat down in the shade of the building and promptly fell asleep, so Avo was disturbed no more by the refinements of this mechanical age.

As far as Avo and Uncle Glory were concerned, the next hour or so passed without event. Our corpulent friend was at peace with the world, though it could not be said with truth that he was sleeping peacefully. His respiration was distinctly audible; the sound was more like some one sawing gourds than a human breathing. The shadow of the mill building continued to creep across the lawn, protecting the colored person who had worn himself out cutting about 20 square feet of the grass.

Along towards the middle of the afternoon, Bonny Smith's looper started skipping stitches. She pushed a button on the table which rang an electric bell in the foreman's office to signal a looper was out of commission.

The ringing of the bell awoke Avo with a start; his feet dropped to the floor with a thud. Thinking it was the plant telephone, he picked up the receiver excitedly and shouted into the mouthpiece, "Hello . . . hello . . . hell-o!" But no answer. Hanging up, he murmured, "Some people haven't got the patience to wait a second. Oh, well, if it is important they will ring again."

Glancing over the unfinished work on his desk he spied the morning paper. Turning to the sports page, he began studying the box score of his favorite baseball team. Reading about things that you are interested in puts your mind in a receptive mood to concentrate more easily on your work, was one of his pet theories. He noted the times at bat, runs, hits, put-outs and errors of each player in the line-up and all that sort of stuff. Pretty soon his eyelids became heavy; he just couldn't seem to keep his eyes open. His head swayed to and fro; his arms relaxed and fell

limp to his side; the paper fell to the floor. He had drifted off into dreamland. A feminine voice was calling his name, "Avo . . . A-vo . . . A-vo-o!" He was dreaming that he had at last gone to his reward, where there is rest for the weary and overworked, and thought he was hearing angel voices.

Presently, he was brought down to earth to awake and find Bonny Smith tugging at his arm. "What's the matter, Bonny? Why didn't you ring me?" said Avo excitedly.

"Why didn't I ring you?" repeated Bonny impatiently. "Why I rang and rang for you about twenty minutes ago. I didn't know whether the bell was out of order, or if you had dropped dead; I thought I had better come see."

Avo found the loop of the thread was slipping off the looper hook, possibly due to wear; it took him only a minute to fix that. After the looper was running again to Bonny's satisfaction, and Avo had waddled back to his office, he was wide awake. "Holy smoke! I should have finished with my pay sheet, and sent it to the accounting department by now," he said half aloud. So, he lost no more time in getting to work on it.

Before he had hardly got started, the intercommunicating telephone rang: "Avo, when are you going to send your production and other reports to the office?" came a baritone voice from the other end of the wire. It was Mr. Greenback, the paymaster.

"It won't be so long now, Mr. Greenback," Avo assured him. "You see, I've had a bad day today—so many loopers to fix. I'm only one man trying to do three people's work. The Old Man ought to put somebody in here to help me; somebody to do the clerical work."

Shortly after Avo had begun work on his payroll, Uncle Glory, who had awakened himself snoring, appeared in the doorway to Avo's office; Avo looked up with a frown as if to say, "Well, what is it? Can't you see I'm busy?"

Uncle Glory cleared his throat and said, "Mister Avo, I'se overworked somethin' awful. Will you speak to the Boss about gittin' another darky t' help with this heah lawn?"

License Under 3-Carrier Patent

According to William R. Smith, attorney for Julius Kayser & Company, Karl Lieberknecht, Inc., Reading, Pa., has taken out a license under the Mutchler 3-carrier attachment patent No. 2,161,550. Royalty will be paid for each and every 3-carrier attachment manufactured and sold, which is made in accordance with the claims of the Mutchler patent.

Textile Machine Works, Reading, Pa., and Fred C. Good & Sons, Philadelphia, are also licensees under the Mutchler patent, according to Mr. Smith.

The Mutchler patent relates to a mechanism for selectively operating carrier rods, one at a time, and the inherent structural features of this invention are such that they may be economically and efficiently incorporated in attachments designed for the knitting of elastic and inelastic yarns into the welt portion of a stocking.

KNITTING KINKS

Operating and Fixing Model ES Machines

Article 9

By Emmett Starr

• THIS is the ninth article in a series* concerning the care, operation, and fixing of the Model ES machine. The series is written with the assumption that the reader has before him the S & W catalog of parts pertaining to the machine. Should you wish any particular phase of fixing discussed, the author will be glad to do so upon request through the editors.

IT IS ESSENTIAL that the lever locking bar (200075), sliding finger thrust bar (200074), finger lock thrust bar (200450) and the auxiliary raising cam thrust bar (7417) Plate 11 work freely in the guide plates, either when being raised or dropping off the drum cams. The thrust bar guide plate (200386) Plate 12 becoming loose or the auxiliary lowering cam bracket, to which the guide plate is fastened, not tightened securely to the cam ring will hinder the bars from functioning properly. Finding these parts securely fastened it may be necessary to loosen the guide plate and by either moving it in or out a trifle; a slight change in the position of the guide plate often produces the necessary results of having the bars work free.

Whenever it becomes necessary to replace any of the bars make sure that the new bar works freely, bend the bar so that it will line up with the part or bracket that the bar controls or operates and not come in contact with any other part and a slight twist either to the left or right of the lower half of the bar may be necessary so that the bar will drop freely into the lower guide plate. The bottom end of the bar should ride or rest in the center of the race of cam or cams that raises that particular bar; if over to one side the bar may come in contact with the next race of cams, elevating the bar at the wrong time, causing some kind of a jam-up.

None of the above mention bars have thrust bar springs to aid them to drop, so it is very important that they do not bind, but when raised they will drop by their own weight.

The lever locking bar controls the heel and toe yarn take-up. When the machine is in the process of knitting the heel or toe the bar is raised. The bar when raised comes in contact with the heel and toe rocker plate stud (300284) Plate 24, releases the take-up arm (200087) Plate 27, enabling the slack yarn to be taken up as the cylinder reciprocates; the slack yarn not taken up properly will cause it to skip, making the heel or toe imperfect. The bar dropping off the drum cam at the completion of the heel or toe locks the take-up.

The drum cam raising the bar before the heel and toe yarn fingers drops, when making the main rack move going into the heel, will release the take-up before the yarn has a chance to knit .The yarn not held securely by the yarn clamp will be withdrawn from the binder and out of the finger causing a press-off. The bar dropping off the cam too soon will lock the take-up too quickly, at the completion of the heel or toe and, will cause the yarn to loop over the needles as they are being drawn down by the running down stitch cam.

It would be advisable to check the heel and toe yarn finger, thrust bar, and the drum cam, that the bar when dropping off the drum cam when changing to the heel, the yarn will enter the needles an inch or an inch and a half from the first medium butt needle. The drum cam too long, thrust bar or the yarn finger binding will drop the yarn too late. The yarn take-up being released before the yarn has a chance to enter the needles will pull the yarn from the binder and out of the finger. It may seem that the lever locking bar drum cam is raising the lever locking bar too soon, instead of which, the real trouble is that the yarn does not enter the needles soon enough.

Accumulation of lint in the porcelains or the heel and toe yarn finger will make the take-up act sluggish and will not take the slack yarn up properly, causing the yarn to skip or loop over the needles. The lint gathering in between the heel and toe yarn tension disc will release the tension on the yarn. When the tension has been released the take-up instead of taking up the slack yarn as the cylinder is reciprocating will draw the yarn from the cone; this will also cause the yarn to skip and loop over the needles when making the heel or toe. Before making any adjustment on the tension or the take-up arm spring (300026) Plate 27, check over all porcelains and yarn guides through which the heel and toe yarn is threaded and also the yarn finger. Nicks, grooves, burrs or sharp edges of the yarn finger and

*The other articles in this series appeared in the Knitting Section of the August, November and December 1938 issues, and the January, March, June, and November 1939 issues. More will follow.

defective porcelain and yarn guides will injure the yarn besides hindering the take-up from functioning properly.

There is only one cam on each of the races that raises the finger lock thrust bar and the sliding finger thrust bar. In spare moments or when fixing on any machine, check the drum cams, making sure that they are all fastened securely. Tighten any other cams that are apt to come loose by the constant operation of the machine.

The rack after the press-off is used to level the needles, lock the fingers up out of action and stop the machine. After both of the stitch cam brackets have been withdrawn, the finger lock thrust bar is raised to rotate the sliding finger lever pin (11972) Plate 24 so that it will drop into the notch of the sliding finger operating lever lock and then the bar drops off the drum cam. Locking the fingers up out of action will prevent any slack to form in the yarns between the fingers and the binder while the latch ring is being raised and lowered. Yarns held in this way when being inserted will give the yarn a better and more positive chance to enter the needles at the start of knitting and when making the various yarn changes.

Failure of the fingers to be locked up out of action can be due to various reasons: the finger lock thrust bar adjusting bar not set properly, that when the thrust bar is raised it does not rotate the sliding finger lever pin enough to allow the notch of the lever lock to engage the pin; the finger lock thrust bar pin sliding finger lever stop pin and sliding finger lever pin not fastened securely, or one of the pins may be broken. The thrust bar, when raised, rotating the sliding finger operating lever too far will put too much pressure on the pins causing them to break or become bent.

After the top has been placed on the needles a main rack at the start of knitting inserts the right stitch cam bracket at the beginning of the short butt needles; this releases the finger lock grip so that the ring top yarn will drop into the needles 1½ inches or 2 inches before the first medium butt. The left stitch cam bracket enters about the middle of the short butt needles. Just before the end of this rack the auxiliary racking pawl drops into action. On this auxiliary move the sliding finger thrust bar is raised and when coming in contact with the sliding finger operating lever eccentric, when set properly, will move the sliding or ring top finger forward in order to lay the yarn under the hook of the first medium butt needles as they are drawn under the left stitch cam. At the end of this auxiliary move the sliding finger thrust bar drops off the drum cam leaving the ring top finger to drop into regular knitting position.

Hooks of needles, twisted to one side or broken off, or the upper part of the needles bent at the start of knitting is generally due to the ring top finger coming in contact with the needles when the finger is forward. When this condition arises it will be necessary to readjust the eccentrics. In making this adjustment the sliding finger thrust bar should rest on the drum cam raising the bar to its highest height. The eccentric can now be adjusted so that the ring top finger will be forward to lay the yarn under the hook of the first medium butt needles without touching any of the needles. When the proper adjustments have been made tighten the setscrew so that the eccentric will be held firmly in place.

When it becomes necessary to remove the yarn finger pin (11988) Plate 24, it would be advisable in replacing the pin not to insert it too far, causing the sliding finger operating lever to bind between the cotter pin and latch ring. The sliding finger operating lever spring aids the lever to drop in position as the finger lock grip is released at the start of knitting, but should the lever bind, this spring may not be strong enough to serve the purpose. In the event the lever fails to drop into position the lever eccentric will not be above the sliding finger thrust bar to allow the bar to come in contact with the eccentric pin as the bar is being raised, instead of which the bar will come up in back of the eccentric causing the machine to turn hard at the start and the sliding finger will not move forward in order to lay the yarn under the hooks of the first medium butt needles. The finger not moving forward will fail to lay the yarn under the hooks of the needles causing the yarn to miss the needles. Before tightening the yarn finger setscrew test the sliding finger operating lever as it should rotate freely on the yarn finger pin and the lever spring should be connected properly.

The action of the auxiliary raising cam is governed by the auxiliary raising cam thrust bar. As the bar is raised by the drum cam, it rotates the auxiliary raising cam operating lever. This puts the auxiliary raising cam into action, to elevate the needles that are selected to take on the wrap yarns when making the pattern. The auxiliary raising cam when in action should be adjusted so that there is a little play between the cam and the cylinder, but in far enough to elevate the extra short butt needles if they should be selected any time during the pattern. Bevel off the edge and lower point that if the cam should happen to rub against the cylinder as there will be less danger of the cam damaging the cylinder.

Needles that are selected in making the pattern should be raised by the jack cam 5/32-inch higher than those not selected. This will give clearance between the butts to allow the auxiliary raising cam to get under the needles that are raised by the jack cam so as to elevate them and those needles that are not selected will not come in contact with the auxiliary raising cam. The jack cam raises the needles that are selected when making the pattern high enough; but still when there is not enough difference between the butts of the needles that are raised by the jack cam and the needles that are not raised to warrant the auxiliary raising cam to operate so there will not be any danger of the cam breaking the butts off the needles, it may be caused by the lowering

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switch cam. Inspect the lowering switch cam, perhaps too much stock was taken off the bottom of the cam to remedy some other trouble without realizing the results that would be involved in doing this.

When the lowering switch cam lowers the needles and there is plenty of clearance between the butts of the needles and the auxiliary raising cam, a little stock can be removed from the bottom of the lowering switch cam. This will also leave the needles at a higher level as they pass the throat plate, so that the two extra short butt needles on each side of the instep which are not drawn down by the medium butt splice cam, during the high splice heel and double sole, will have a better chance of inserting and removing the splicing yarn for which they are used.

The auxiliary raising cam bracket should be fastened securely to the cam ring and all other parts should be fastened securely. The auxiliary raising cam slide actuating finger operating lever, operating lever, and the thrust bar must not bind. When the auxiliary raising cam fails to drop out of action, check the auxiliary raising cam spring, located in the auxiliary raising cam spring thimble as it may have become broken. The spring is the only means of removing the auxiliary raising cam from action when the thrust bar drops off the drum cam, therefore it is essential that the slide, levers, and thrust bar work freely.

System to Keep Needles Working

EDITOR COTTON:

Your "CONTRIBUTOR No. 6959" has asked on page 179 of the October 1939 issue, "What would be the best system to be applied to full-fashioned knitters in keeping the needles, sinkers, points, and bits in proper working order to insure a good fabric at all times?"

Some operators just do not care and others do not have the ability to keep needles, etc., spaced and lined correctly to insure good fabric and a minimum of trouble from this source. Those who are not capable and find it difficult to perform this task are the real problem and there is but one way to handle this type of operator. If, after careful inspection and watchfulness of his machine on the part of the fixer or foreman it is concluded he lacks the necessary skill to space and line needles, etc., properly, he should be tutored by some operator in the plant who is considered an expert with a pair of pliers and all mills usually have at least one man of this type.

Even if a class must be gathered together for an hour once a week and the instructor paid extra for his labors the time and money involved is well worth the trouble. These men should not be released from the custody of the instructor until he says the time is appropriate for such a procedure. A rule should then be put in force making it essential these men have at least fifty straight needles pliered ahead at all times. These needles should be inspected thoroughly and at random for machine worthiness.

It is the slap-hazard way most of the points and needles are taken from the pack and placed in the machine which is the first fatal step in producing misaligned needles and points. And one will usually find that it is the poorest man with a pair of pliers who is the greatest offender at this folly. If, after a little patience and instruction a man still does not have the ability to space and line correctly there are two alternatives—either put up with it—which is quite inadvisable, or place another man on the machine.

After an operator does become efficient there is still the latent possibility he might relegate into the careless class. We have found that a good system to overcome this slipshod operating is to inspect the machine at least once a week and wherever it is noticeable there are parts out of line they must be pliered immediately, to the satisfaction of the management.

With this method in force the operator will eventually learn that it is more profitable to be careful at the outset. Of course, there is no doubt but that the percentage of operators who will always remain just fair needle men are in the majority, regardless of the number of years they have been in the business. There are some who will never learn to use a pair of pliers no matter how long they operate and these kind are an expense to any mill.

CONTRIBUTOR No. 7016

Crooked Seam in Welt

EDITOR COTTON:

On page 121 of the September 1939 issue of COTTON, "CONTRIBUTOR No. 6956" has asked for the causes of crooked and zigzag seams down the back of the welt on full-fashioned stockings, after the stocking is finished.

This man mentioned that "just some of the stockings" have a crooked and zigzag seam down the back of the welt, which is usually caused by crooked heads. The reason this might not be apparent in the main leg is because a lighter yarn is in use and the seamer will stretch the short side of the stocking so the heel, fashion marks and sub-welt match, but when that has been accomplished the seamer will feed the fabric into the seamer without any precautions—and in fact, there is very little left for her to work on when she reaches the welt.

CONTRIBUTOR No. 7009

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EDITOR COTTON:

This has reference to the question on page 121 of the September 1939 issue by "CONTRIBUTOR No. 6956" and pertains to causes of crooked seams down the back of the welt after the stocking has been finished.

A crooked and zigzag seam down the back of the welt of a finished full-fashioned stocking can be attributed to several influences. If the welt is a cotton, rayon or Bemberg welt, a certain amount of shrinkage takes place in the dyeing and boarding and therefore a slightly looser seam should be used. This will reduce the curling, but cannot completely eliminate it.

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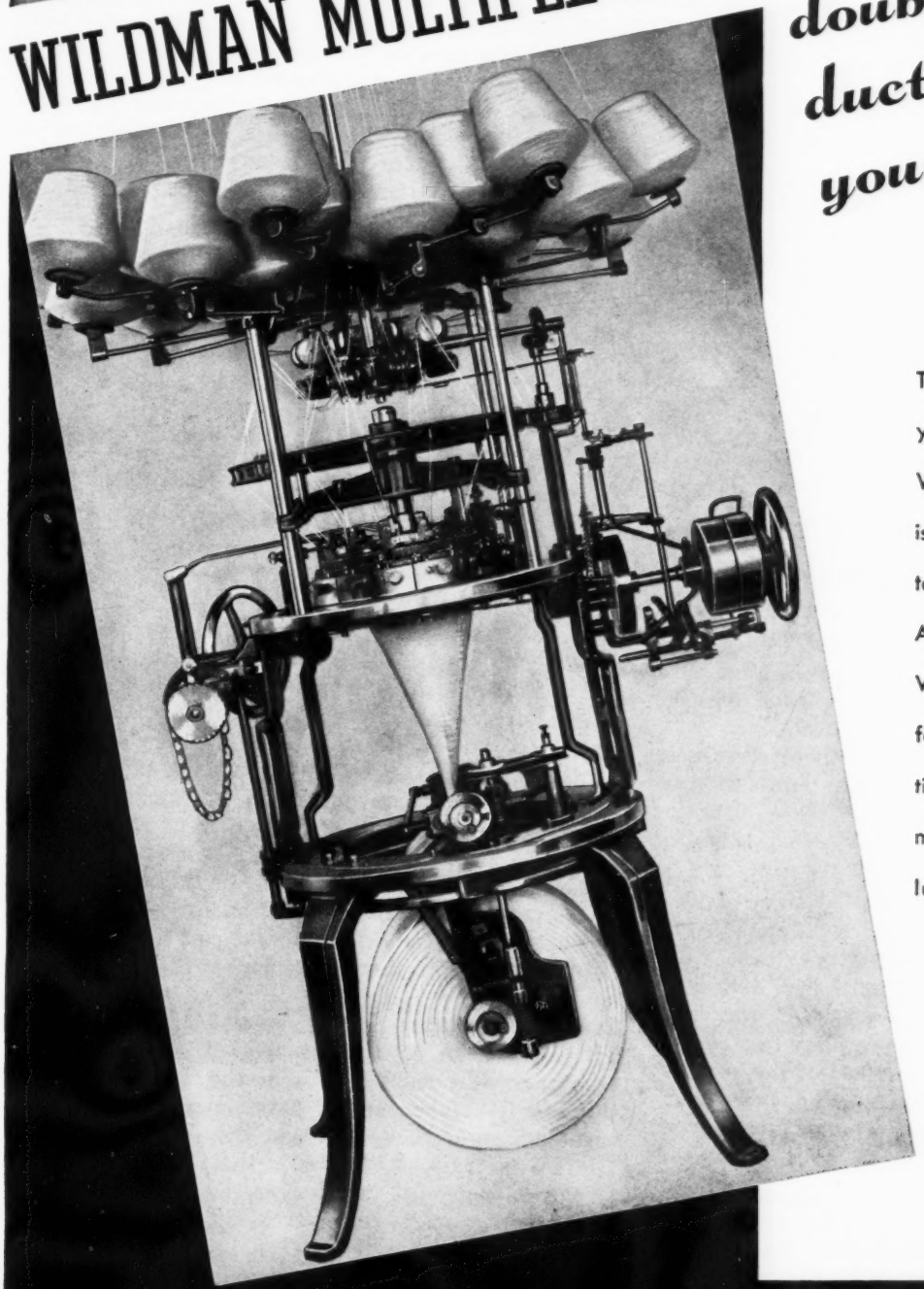

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Where such a welt is knit with a silk leg boot, there will always be more shrinkage to the welt than to the leg; the seam can never be made exactly right so that there will not be any curling. If seamed too loosely, the entire seam will be curly and wide. If seamed too tightly, the welt seam will curl like a corkscrew. The best that can be done, is to arrive at a happy medium and stay there.

In boarding rayon or Bemberg welts, the boarder should take care not to pull them too hard, because welts made from these materials stretch very readily when wet. If they have been stretched by too much "pull", after boarding the welts will have shrunk back to practically its normal dimension but the seam has been stretched and this leaves an excess of seaming yarn in the welt area. As a result the seam curls and is crooked down the back of the welt. Try pulling on the seam back of the welt of a wet stocking, and you will note what the writer is describing.

Crooked seams may be due to the seaming operator pulling the welts too hard as they are fed into the uncurling device. In her tense effort to match the welts and such adornments as colored stripings, lace designs, extra picots, etc., she exerts extra pressure on the welts. This distorts and stretches the welts resulting in less seaming stitches to the inch being put into the welt area. When the hand pressure of the seaming operator is withdrawn, the fabric returns to its normal dimensions and this puckers and curls the seam at the back of the welt.

Crooked and zigzag seams may also be due to uneven welts. If the needles on the leggers are not pliered properly and are out of alignment, or the needle bar or sinker head is set crooked, the welt knitted on that section will be crooked. In fact the entire stocking will be knit longer on one side than on the other. The needles that are pushed forward will knit a smaller loop than if they were in a normal position. The needles that are farther back will knit longer loops than if they were in a normal position. When time for welt turning arrives, there is small chance of the knitter noticing this condition. But when the seamer is seaming the stocking and reaches the welt, trouble comes up and "smacks her in the face". She finds that she has more material at one end of the welt than she has at the other. In order to seam up this welt she has to pull (and pull hard) on the short side of the welt. After seaming is completed, the stretched short side of the welt returns to its normal dimensions and this pulls the back of the welt down, causing the seam to curl and zigzag.

CONTRIBUTOR No. 7010

Some Pointers on Overcoming Streaks in Full-Fashioned Hose

EDITOR COTTON:

This is in answer to the questions on streaks in hosiery as asked by "CONTRIBUTOR No. 6953" on page 177 of the October 1939 issue of COTTON.

Many things have been written about streaks in hosiery; I will point out just the main points to overcome them. First of all there are three different kinds of streaks to consider, namely: Needle streaks, sinker streaks, and jack streaks.

Before going into these details I wish to make it clear that first the machine should be adjusted right. The main factor is the play between the slurcock and verge plate. It should be not less than a divider or more than a divider. If you have a fixer who could do this without changing the verge plate to a certain extent it would eliminate 50 per cent of the streaks; however if the verge plate is too much out of proportion it will cause the catch bar to jump, ruining your sinkers, which will cause great damage to the machine. The fixer should know to what extent the verge plate can be moved.

If the machines have been running a number of years the bearings and bolts may be worn out, causing too much play in press and regulating shafts. It is very important to correct this play so the needle bar will rest, without any vibration, before making the next course.

However, if streaks still occur then you must turn to the three things at first mentioned.

Needle streaks are caused by the beard of the needle, which must be set according to the type hose run. A Jacquard welt needs .018-inch height in needle beard. A plain hose with picot should be about .014-inch. The height of the beard is very important to prevent needle streaks. I am sure the concern where the needles are purchased will gladly furnish a gauge which would be of great help to the knitters.

Sinker streaks: I have found that sinkers wear differently in a length of time, in the groove, also where the jack hits the sinkers causing tight streaks. By changing sinkers, tight streaks can be eliminated, but also be sure to change dividers at the place where streaks occur.

Jack streaks are single loose streaks being caused by single jacks stuck tight by jack walls. In this case the head should be removed and everything thoroughly cleaned and if possible re-ground, being sure no jack is sticky and that they all move freely.

There are no oil streaks in the finished stocking as the oil is boiled out during the dyeing process; however, if there are rust streaks the dyeing process would not help them.

To keep everything smooth and clean I find that needles and points should have a light lubricating oil put on every night after the mill is through. At the close of the week a piece of cotton yarn should be run on each machine to be sure excess water is out. This may seem expensive but will pay in the end.

CONTRIBUTOR No. 6990

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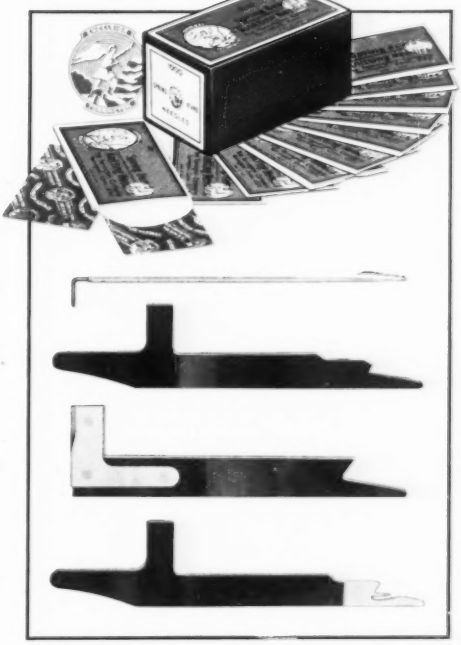

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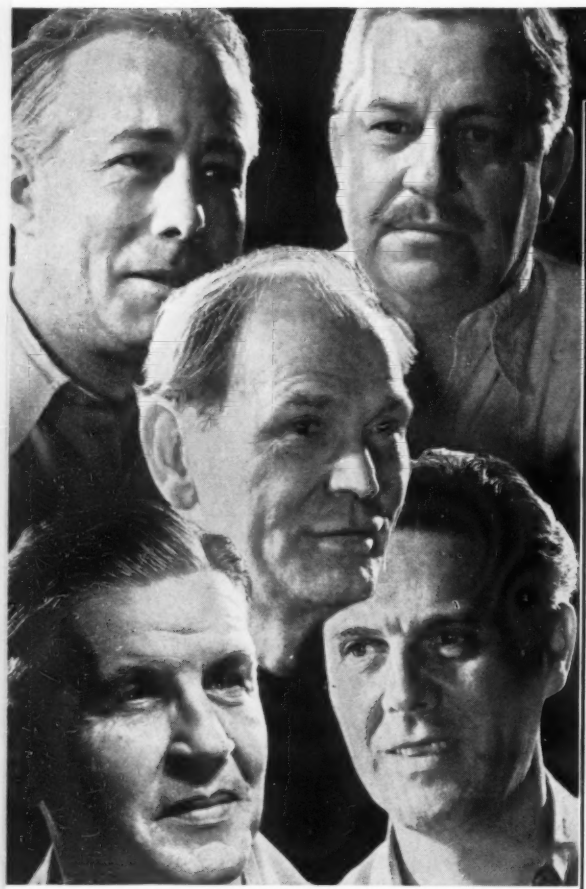

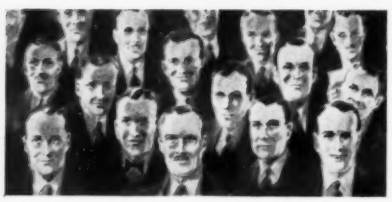

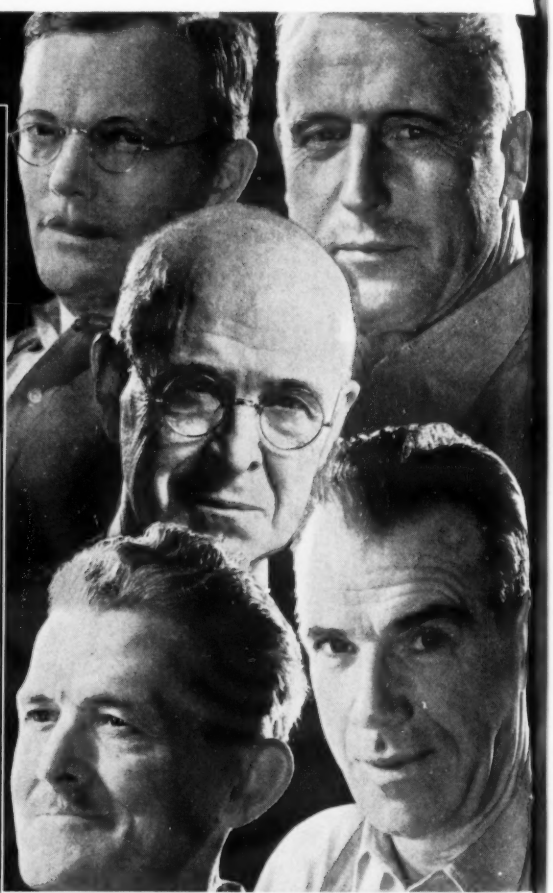

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Trouble with Picot Jacquard

EDITOR COTTON:

"CONTRIBUTOR No. 6958", in his question on page 177 of the October issue of COTTON, is having trouble with the picot Jacquard on his full-fashioned machines. The loops have a tendency to drop low on the picot points, knock-over, and around the needles, thereby causing the machine to drop stitches. This occurs when the Jacquard pattern is heavy and requires consistent and fast dipping of the narrowing machine, especially on new short needle machines where movements do not give much latitude for adjustment.

The way he explains his difficulty it appears to us as though during the picot motion the loops are not high enough up on the points to begin with; but at the same time it seems hardly probable that the trouble lies in the motion of the machines unless, of course, they have been mis-adjusted to the extent that nothing alleviates the trouble.

As a simple first step, we suggest that he try polishing the needles, sinkers and points thoroughly, for one must have smooth parts for the most satisfactory operation. On many occasions it is even difficult to obtain one good picot where the needles, etc., have become rough. There will not only be many drop stitches but also blind places where the points refuse to take up the loops. Many machines have a tendency to do this very thing of which he complains after having been idle for a period of time or allowed to become rough due to lack or careless use of a high grade oil.

This condition is usually more discernible in mills where there is an abundance of moisture at all times. The peak of the trouble may take weeks in arriving but when it does—the cure for the ill is so simple that sometimes it is totally disregarded. Where there is a condition of this sort the machine must be lubricated (needles, etc.) generously, and cotton should be used while polishing for it does the job quicker and better than silk. We have found that cotton is at least 85 per cent faster than silk as a polishing yarn, by actual timing.

Silk May Be at Fault

Certain silk is not at all partial to repeated dipping of the narrowing machine when the picot bars are in use, especially when a fancy design is being run. To our knowledge there are throwsters who prepare silk for just such an emergency as this and many times the use of this special silk will help a great deal.

Now then, assuming the machine has the proper narrowing machine height and pitch, there is one helpful mechanical step which can be taken to eliminate the trouble if the foregoing is not the cause. Knock-over motion is very important when running designs or mesh and it is usually because they are too low that the points fail to receive the loops high enough for perfect delivery. There have been occasions when we found it quite necessary to build up the knock-over cams on the narrowing sides to push the loops farther up on the points on the first dip. Building them up pushes the fabric higher which in turn is the reason why the loops are higher, and of course, doing this on the narrowing side permits one to keep the running side of the cams at gauge.

If an attempt is made to raise the knock-overs as a whole there may be other troubles to arise during the running of the set. The amount to be mended on the cams must rest with the fixer, it all depending on the extremity of the trouble and the type of machine. Incidentally, there are some old types of machines which will do this if the knock-over for the narrowing has been lowered, which adjustment is in the back. If there are any such type of machines in his plant we suggest he also check this item.

CONTRIBUTOR No. 7015

The Sizing of Full-Fashioned Hosiery

EDITOR COTTON:

This is a reply to "CONTRIBUTOR No. 6952", who has asked the best method of counting the stitches in full-fashioned and the best method of sizing when direct knitting is done; his question appeared on page 121 of the September 1939 issue of COTTON.

We feel the most practical way to check and hold the sizes, within reasonable limits, on a legger is to measure the leg blank on a yard stick after it comes off the machine. We endeavor to obtain sets for measuring after they have been off the legger some given time. For instance, when the machine has reached the point where it is necessary to turn welts, we then measure the last set off the machine. This is done because the leg blanks shorten up after they are off the machine awhile.

On our footing machine we always let the set run through until the change has been made into the toe and enough courses knit to get the toe yarn out to the end of the sinkers when the needles rise ready for a new course of yarn to be drawn. This will usually be two to four courses, depending on the number of stitches per inch. Then measure in each sole portion from the sinkers to the topping point. We also occasionally count the stitches in the instep part of the foot.

Regarding the matter of sizing in an air conditioned plant, it seems as if the method of sizing would be somewhat immaterial.

Would not the main point to be ascertained be this: Find what allowances had to be made in measuring at the knitting machine in order to have the proper length after boarding the hose? The assumption would be, of course, that a uniform relative humidity would be maintained at all times in the knitting room.

CONTRIBUTOR No. 6993

Suggested Remedies to Use When the Picot Turns Out on Full-Fashioned

EDITOR COTTON:

"CONTRIBUTOR NO. 6955" states that his picot turns to the outside of the welt where the seam and the picot join. The picot runs evenly along the top of the welt to the point where the seam and the picot join, and then it drops to the outside of the welt. This question appear on page 174 of the October, 1939 issue of COTTON.

In trying to be of some help to this mill, we suggest that this man check immediately the ware roller apparatus, the ware roller band, whether the same tension is on both bands.

We would also suggest that the seaming operation is checked very carefully so the one side is not bulged.

We really should receive additional information in the questions that the contributors send in. For instance in this case it would have been helpful to know whether the stocking shows an uneven picot after it is seamed, or while it is on the machine. If it shows up on the knitting machine, it may be just the tension of the ware roller bands, however, if this condition runs through the seaming, then it is a matter of seaming and ware roller bands.

CONTRIBUTOR NO. 7004

EDITOR COTTON:

The inquiry of "CONTRIBUTOR NO. 6955", who is having trouble with the picot turning out, sounds as though the picot trouble he is encountering is spread over the entire plant, which leads us to believe there might possibly be something wrong with the general construction of the welt.

As the first step we would suggest that he try shortening the outside welt a course or two to allow for the two loose courses the operator usually puts in at the beginning of the set for easy bar manipulation at the turning point of the welt. It is always more advisable to favor the inside part of the welt with courses for the simple reason the boarder pulls *downward* on the stocking as it rests on the form. Though the outside welt may be several courses shorter in length the picot can still be boarded in place. On the other hand, the result is just the opposite when the outside welt contains too many courses and it can be noticed that the picot curls outward in spots regardless of what part of the picot edge this fault may be visible.

CONTRIBUTOR NO. 7006

Preventing Rust on a Full-FashionedMachine

EDITOR COTTON:

"CONTRIBUTOR NO. 6954" on page 177 of the October 1939 issue of COTTON has asked a question on how to prevent rust accumulation on full-fashioned machines.

It is difficult to make a definite statement as to the effective remedy for this condition without knowing what methods are employed in operating the machines and in the running of the silk. We believe that every mill is faced with this problem to some extent. Mills operating with high relative humidity in their knitting departments and running silks in a very wet condition are naturally more affected by this rust problem.

If a mill wishes to avoid formation of rust it is important to adhere to a few general principles:

1. Thorough cleaning of knitting machines at regular intervals.
2. After cleaning, use wiping rag dipped in composition of mineral oil containing 10 per cent animal fat to obtain an oily film on all steel parts.
3. Periodic wiping of all steel parts and application as stated in foregoing paragraph.
4. Installation of spray pans to catch excessive spray. This will prevent to a great extent the rust formation on frictions, carrier rods, guide wires, etc.
5. The addition of a small amount of sulphonated olive oil to the water or softening solution in the troughs on the machines; proper proportions can be determined by experiment under varying local conditions.

Where trouble is experienced with rust deposits running from the oscillating shafts, I suggest more frequent oiling with ordinary oil or the installation of a high pressure system of lubrication; this will reduce the rust fomation in these bearings.

CONTRIBUTOR NO. 7003

Efficiency Record for Knitting Mills

EDITOR COTTON:

Detailed records of various activities in the hosiery mill and other industries have been kept for future reference and comparison. No twentieth century mill executive doubts their value.

Organized professional baseball clubs have kept records of the individual players' efficiency for many years. Without such records it would not be possible to determine the value of the individuals on the team with any degree of certainty. The big league scout is influenced, to no small extent, by a promising young player's batting average.

Now, why not individual efficiency averages for mill workers? They would be of value to the employer and

employee alike. The former could tell at a glance which of his help is the most efficient. The latter could see just when and how he is "slipping" and snap out of it before it is too late.

How the Record May Be Kept

The accompanying form illustrates how such a record could be compiled. The first column is for the operative's name and serial number. The second, headed by the letters O.T. and L., which stand for on time and late, is for recording the operative's per cent of punctuality. In the third HW. and HA., which means hours in the week, and hours absent, shows the operative's percentage of consistency. Column four, SP. (specified production) and AP. (actual production) indicates whether or not the operative is turning off the work he or she should. Under the column marked Sc. is recorded the number of seconds made and the percentage of good work. In the last column is entered the operative's average percentage, which is found by adding the percentage of the four preceding columns and dividing by four. The average percentage shows the individual's real value to the company.

Examining the form shown herewith, we find that Mary Doe punched the clock on time throughout the week and was never late. That gives her 100 per cent for punctuality. Next, we see she worked the 40 hours in the week without being absent, so she scores 100 per cent here. Now, it can be seen by the fourth column that she got 104 dozen which is four dozen more than required, giving her 104 points on production. Out of this number she made 6 dozen seconds; this figures 94¼ per cent and as the fraction is less than ½ we drop it and give her 94. The figures here are used to simplify the example; the percentage of production can easily be figured for any given production standard. Summing up and dividing by 4 we get 99½ per cent, so she is entitled to an average percentage of 100. A perfect record for the week—what a valuable employee, if she could hold it.

Looking at Grace Jones' record, it can be seen she was late one time out of 10; that, of course, brings her percentage down to 90 on this point. She was absent 8 hours or one day out of the 40. Maybe she was sick, but she was absent nevertheless; so that sets her back to 80 per cent here. However, she got production with two to spare, more in proportion than Mary Doe got, inasmuch as she lost one day. We see in the seconds column she has only 3 dozen seconds charged to her. Insofar as quantity and quality of production is concerned the record shows her to be a better knitter than the first girl, but by being late one time and losing one day during the week, it brought her average per cent down to 92.

It will be noticed that these two knitters have serial numbers K2912 and K2810 respectively. The letter before the number represents the department—in this case knitting. The first two numbers, the year the operative was employed, and the last numbers the order in which they were employed that year. In the case of Grace Jones, K2810 means that she is in the knitting department and was the tenth person em-

RECORD OF EFFICIENCY

DEPARTMENT Knitting WEEK ENDING 10-1-37

NAME AND Nº	OT.	L.	HW.	HA.	SP.	AP.	SC.	AV. PCT.
Mary Doe	10	0	40	0	100	104	6	
K2912	100		100		104		94	100
Grace Jones	9	1	40	8	100	102	3	
K2810	90		80		102		97	92

This contributor sets forth a plan that may be worked out — with possible changes to suit local conditions. What do you think of it? . . .

ployed in the year 1928. With this system it can be seen just by comparing the numbers which employee is the oldest in point of service.

This system is designed to eliminate favoritism, to show in "black and white" the deserving employees, and to show up those that are getting by through "pull". If these records are accurately and impartially compiled, it will be a great inducement to increased efficiency.

Even though the operatives be piece workers, with this system, it is better for all to punch the clock so the number of hours worked and the punctuality of each worker can be accurately checked. If these reports are made out by the various foremen, who may have intimate contacts with certain employees, the temptation to "dress it up" might be too great. Then too, the clerical help in the office could keep the records better as they would be more likely to have access to the calculating machines.

A duplicate of these records could be posted in each department every week so the workers could see just how they stand. As an added inducement for greater and consistent effort on the part of the operatives, a week vacation with pay might be offered to the ones making a weekly percentage of 95 or better for one year.

This would be sounder than giving employees a week vacation with pay just for being in the employment of the company for one year. Merely working at a mill a year is no evidence one has earned a vacation; but if it is necessary to be 95 per cent efficient every week in the year, it is a safe bet the operatives will make an effort to earn it.

CONTRIBUTOR NO. 6746

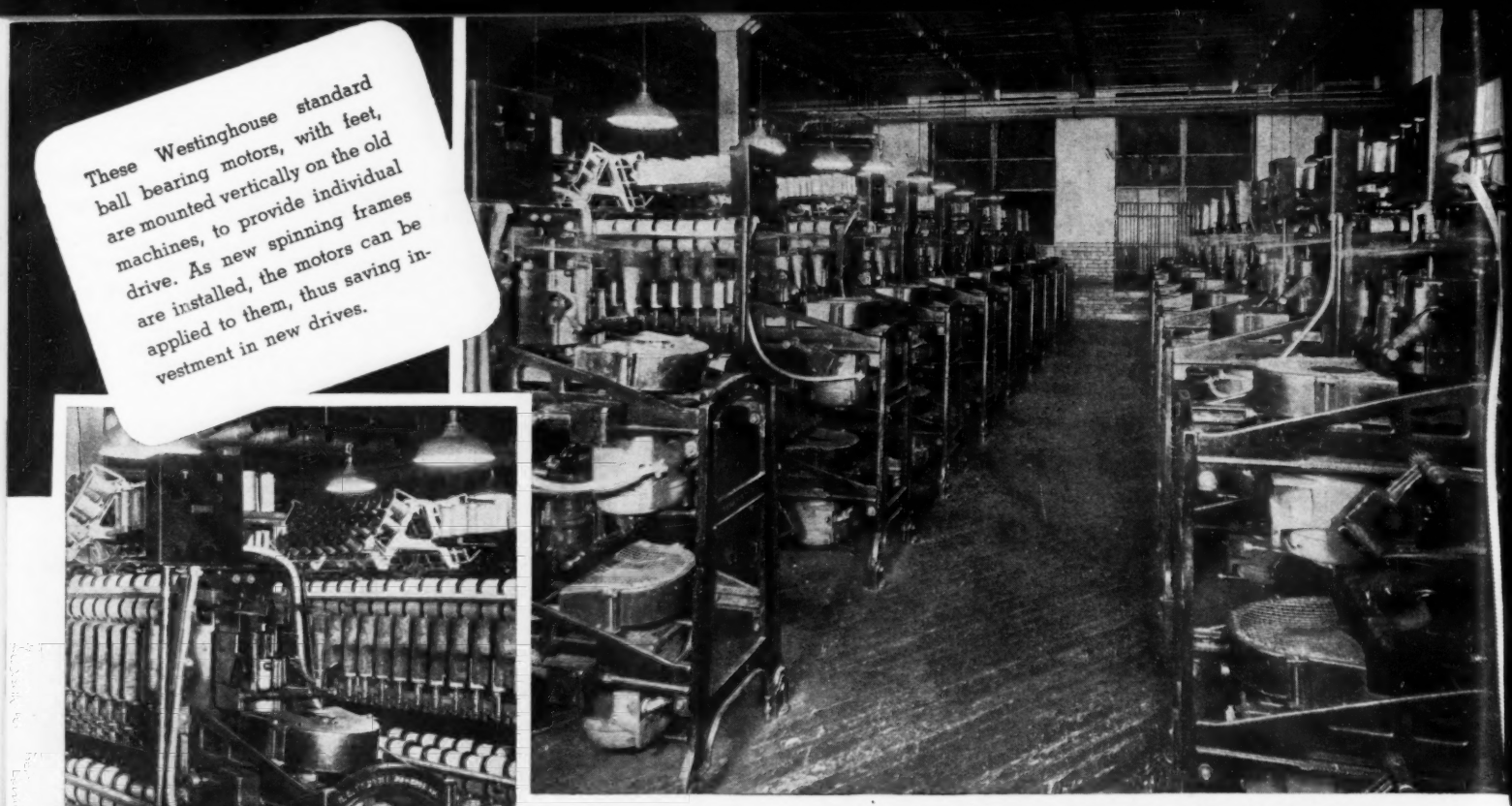
As I See It

It may cost you some money to buy a few books each year and subscribe for one or two magazines in your line of work.

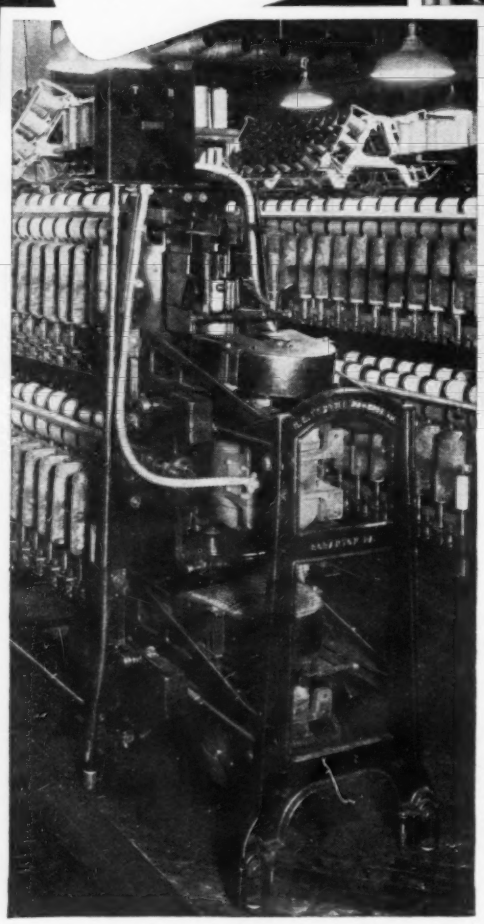
But it may cost you much more if you don't make some such investment in your own self-improvement.

Recently, I heard Cy Ching, noted labor relations executive of the United States Rubber Company, say, "The quickest way to get far behind the times these days is just to stand still for a short while."

Cy has said many true things, but nothing truer than that.—*Glenn Gardiner in "Management Information".*



These Westinghouse standard ball bearing motors, with feet, are mounted vertically on the old machines, to provide individual drive. As new spinning frames are installed, the motors can be applied to them, thus saving investment in new drives.



UP GOES PRODUCTION... DOWN GO COSTS!

Hosiery mill cuts power costs 70%, drops thread breakage 28%, boosts production 12%, with modern electric drives

In a Pennsylvania hosiery mill, a power survey was followed by the decision to buy power in order to release steam for plant processes. A substantial investment in new boilers was saved . . . and power costs cut from about 4c to 1.2c per kwh.

Drive equipment was changed from direct current to 126 Westinghouse 2 hp a-c motors, which run 20 days a month, 24 hours a day. Spindle lubrication at high speed is a problem, so with recording ammeters they constantly check variations in load due to incorrect lubrication, and make adjustments accordingly.

By the change-over, and by carefully watching operating conditions, they have reduced load 11%, cut thread breakage 28%, and boosted production 12%.

A power survey may disclose similar chances for savings in your plant. Westinghouse engineers will gladly co-operate. See your local office or, write Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa. Dept. 7-N.

J-90205

Westinghouse

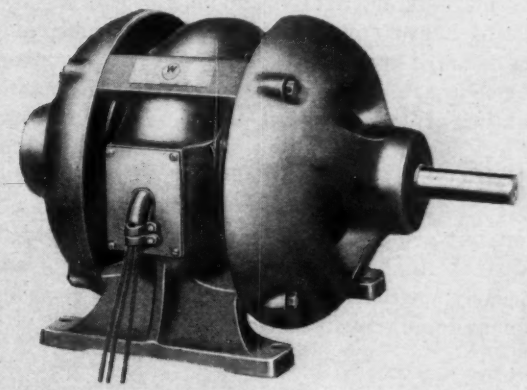
WESTINGHOUSE ELECTRIC

Westinghouse Money Savers

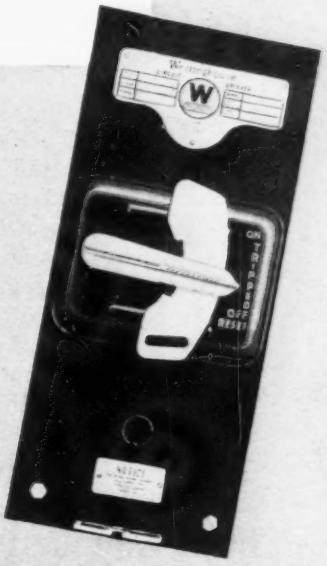
Born and bred for textile service

Westinghouse products and application experience save thousands of dollars every year for many textile mills. Get the benefit of Westinghouse savings in your mill.

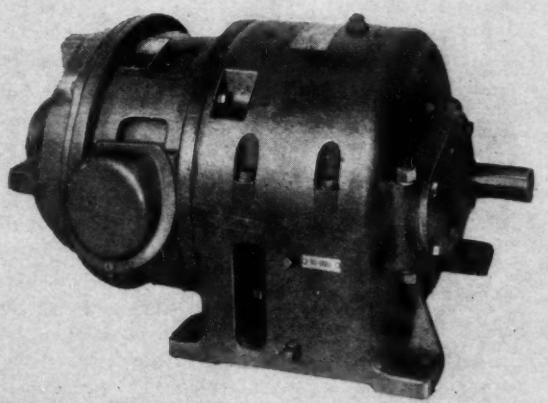
NEW . . . Loom switch — indicating handle shows on, off, tripped . . . lifetime calibration of tripping unit. "De-ion" Arc Quenchers.



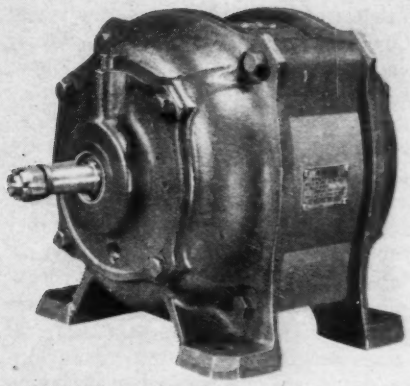
NEW . . . Lint-free Motor, specially designed for textile service. Smooth, slick windings, unobstructed air path, permanently sealed bearings.



STOPS OUTAGES . . . Nofuze circuit breaker eliminates production delays due to fuse outages. Saves many times its cost.



EFFICIENT—QUIET . . . Gearmotors deliver 96% to 98% of high speed motor efficiency for slow speed drives. Ultra-quiet because of new accuracy in gear manufacture.



PROVED . . . Loom motor that stands up under vibration . . . capacity to break in new looms . . . eliminates lubrication grief from wicking of oil by lint.

Motors and Control

TRENDS AND HIGHLIGHTS OF THE
KNIT GOODS MARKETS

Manufacturers Busy But Shipments Exceed New Business As Higher Prices Begin To Meet Resistance Among Jobbers And Retailers—Means To Offset Price Advances By Changes In Knit Goods Construction Studied —Very Large Holiday Trade In Prospect

Philadelphia, November 16, 1939

PRIMARY KNIT GOODS markets have been much less excited this month after the wave of heavy coverage in September and early October but manufacturers are still very busy getting out this business. Some large buyers of knit goods are placing orders for 1940 shipments but as many others are holding off, feeling that prices, if they change, will tend to ease somewhat. Most are studying ways and means of turning out goods to fit desired retail price brackets even though this will mean changes in the construction of hosiery and outerwear; not so much in this connection but some is to be expected in underwear. The full impact of the advance in the textile commodity markets will not be felt at retail until early next year as bulk of the fall coverage was at prices considerably under current costs.

Full-Fashioned

Demand for full-fashioned women's silk hosiery has not been quite so active as it should for November and local knitters not so brisk as they were this time last year. This is due to the advance in prices of both branded and unbranded over recent weeks and the greater caution being displayed by wholesale buyers who say they will take a chance of paying more later on but they will not buy far ahead now. Prices of silk full-fashioned are strong due to the high silk market and although no change in prices is now expected until the holiday season is out of the way, this is expected immediately thereafter. Manufacturers claim they must get more for hosiery to offset the latest advances in silk and this will be done at the turn of the year. Yet there are some manufacturers that claim the consumer cannot stand more advance so they will change constructions by using rayon or by other means to offset what has recently occurred in silk. Production of women's full-fashioned is averaging about 4 per cent ahead of last year.

Men's Half-Hose

Half-hose knitters booked a very large volume of business shortly after war developed and while new business recently has been much less active, the mills have enough business to run them for several months. They are working on spring orders in many instances for cotton and rayon goods bought by the catalog and chain buyers before the price advance was far under way. Makers of sport hose for men are very busy on orders taken a few weeks back and spinners making dyed cotton yarns for this use are in possession of business that will keep them busy for six months ahead. Production of half-hose so far this year is 11 per cent under that of 1938 but the shipments of anklets are very large and these include the men's slacks that sold so well in the summer. This means that men's half-hose mills have probably done considerably more business this year than last including the slacks. The weather has not been cold enough to start a real run on wool lines but a fair season is expected. Half-hose knitters are not ready to talk about wool yarns for the next season's lines yet.

Courtesy, Holeproof Hosiery Co.

Seamless

Seamless hosiery for women has been selling actively with some business that formerly went to cheap full-fashioned coming into the market as prices advance. September and October production and shipments of these lines were the largest of any two months this year and for the first ten months of the year were about equal to the same period a year previous. Production of "ringless" seamless silk stockings for women to retail at 49 to 69 cents is proving a popular development in view of the vast improvements that have been made in the manufacture and appearance of such stockings, it being stated that the shaping of the boot is better than the industry has done before. Because of the advance in silk it has been very difficult for retailers to get hold of 49-cent retailers in silk full-fashioned and the development of these good-looking seamless lines is opportune. Some have feet that approximate the appearance of full-fashioned with cradle soles, French heels, gussets and gores. There has also been a larger call for rayon seamless by stores that cater to the lower income groups and knitters of these have been held back by the late deliveries they report receiving on yarn contracts. Prices of silk seamless have advanced at wholesale as much as full-fashioned because so much of the price is represented by the cost of silk.

Underwear

This is a boom year in knit underwear. At the end of September, orders were twice the size of those of a year

previous. The chief item in the post-war boom was athletic shirts, orders for which were not far from being three times as large as the end of September a year ago. However, the underwear industry was making excellent gains in this respect even before the war but the situation has improved in that shipments have kept pace with the active production schedules. The only threat at present is that due to higher costs, prices of underwear may have to be put up so rapidly that the consumer may rebel but high prices will not be fully reflected in underwear until the 1940 fall season. Bulk of spring goods was bought before the advance was fully under way.

FORECAST

(Opinion submitted by COTTON'S market correspondent)

Philadelphia, November 16, 1939

The level of business in this country at the beginning of this month reached a level higher than that in 1937 and close to that of the boom year of 1929 but since then there has been a slight recession. Textiles have been in the foreground of this surge of improvement since the war developed and most branches of the textile industry have been operating at the best rates in recent years. In general, the industry has orders to assure this condition at least until the end of the year.

Now the feeling is developing that the momentum of this will be sufficient to assure full time operations into the first part of the new year. At that time there may develop an easing in the sold up condition as some work down accumulations of goods but the waiting period early next year will not be long. This is predicted on the assumption peace does not come in the meantime. If peace comes our previous predictions that most businesses would find a fairly important drop in demand stands.

But even if this would follow it does not mean the American business spurt would have spent itself. It must be recalled that textiles had begun to improve greatly even before the war and if peace comes after a short but possibly severe intermission this trend would get under way again and of course on a much healthier basis than based on a war boom although in this connection bulk of the textile improvement has been on domestic orders but with war psychology being a vital factor in it.

Wool has eased from its peak, the reduction in fine tops on the future market being about 15 cents and worsted yarns have also eased about that much; the bottom is here in that commodity unless peace comes; in silk the market hit a new peak at the beginning of October and although some reduction has occurred since there is nothing to indicate much cheaper silk and in the first quarter of 1940 this peak may have been topped due to the expected tightness in the supply end by that time. Rayon is strong and active and this will become more marked due to good demand and also because of switching from high priced silk. Cotton goods and yarns which have been in a lull since the initial buying spurt spent itself will shortly have a secondary buying movement at firm prices.

The outlook is that good business will continue unless sellers try to force prices up faster than conditions warrant; if this is done the consumer will not be able to keep up with the parade and demand will be curtailed even though people are going back to work in large numbers. The average pocketbook demands cheap merchandise yet and manufacturers that lose sight of this are going to fall by the wayside of the improvement parade. Volume at a reasonable profit margin will be the best policy. At the same time price increases in textiles are apt to be less marked from now on, reducing excited buying.

New Underwear Wage Minimum Recommended

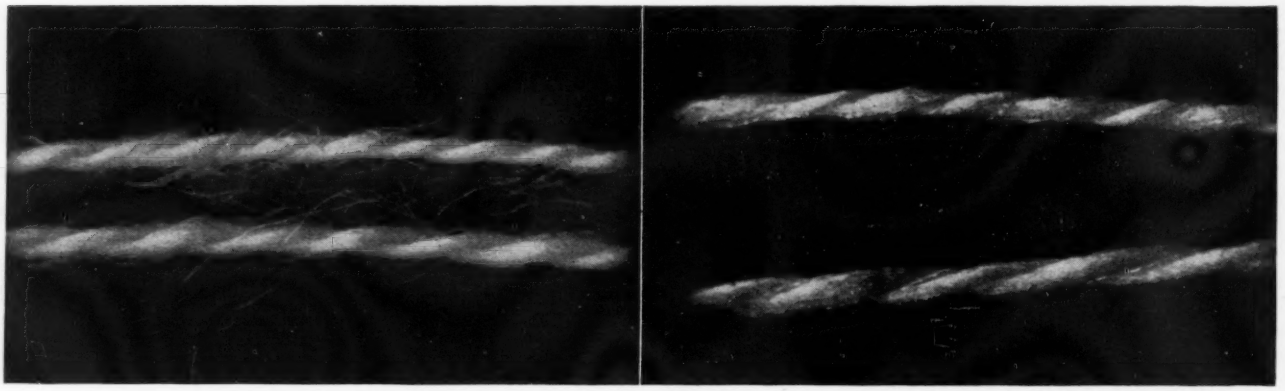
A minimum wage of 33½ cents per hour for the knitted underwear industry under the Fair Labor Standards Act was recommended unanimously by Industry Committee No. 8. The hourly wage rate of approximately 16,000 wage earners in the industry would be increased if the Administrator of the Wage and Hour Law approves the recommendation, according to an estimate by the wage and hour division. However, the Administrator must first hold a public hearing. Committee No. 8 has jurisdiction covering the production of knit fabrics for sale and the production of underwear and sleeping wear and negligees from knitted fabrics as well as the manufacture of sweat shirts, polo shirts, and other garments made chiefly in underwear mills. At one of the hearings in Washington, labor interests asked for a 40-cent minimum while the industry itself as represented by the Underwear institute, left the wage matter up to the committee without making a specific recommendation.

A representative of the Textile Workers of America informed the committee that his organization believed the underwear industry was able to pay a wage equal to 40 cents an hour. He asserted that statistics compiled by the Department of Labor bearing on the industry included some not observing the wage structure as well as those who are trying to benefit the industry and are following the wage structure. He said that southern mills had really enjoyed what amounted to a differential in that they were able to absorb operating costs much easier than mills in the North. He declared that the knitted cloth industry was able to stand a 40 cent minimum without presenting any serious financial problems. The American Federation of Labor also stated there was ample justification for a recommendation of not less than 40 cents an hour.

While no direct recommendation of a 32½ cent minimum was made, Francis E. Simmons, witness for the Underwear Institute, inferred that organization endorsed such a figure. He emphasized that a number of the members of the Institute were manufacturers under the general textile industry wage minimum of 32½ cents per hour and said that the minimum standard should be the same in both trades. It was also pointed out that the minimum wage affects the entire wage scale. In connection with this the witness referred to a statement once made by former Administrator Andrews in which Andrews said that the establishment of a minimum wage affects the entire wage structure which he pointed out has been the experience in several different states.

35-Cent Pay Minimum Recommended for Outerwear

By a vote of 16 to 1 with John Springthorpe, employer member from Mount Airy, N. C., dissenting, the Knitted Outerwear Industry Committee, sitting in Washington on October 26 recommended a 35 cent minimum for factory and home workers to the wage and hour division, Department of Labor. The industry for which this recommendation was voted is defined as "The knitting of any yarn or mixture of yarns and the further manufacturing, dyeing or other finishing of knitted garments, knitted garment sections, or knitted garment accessories for use as external apparel or covering." Following the recommendation made to the Administrator of the wage-hour division, a public hearing will be called at which evidence, covering the same ground as that upon which the industry committee recommendation was based, will be obtained. The administrator can approve the committee recommendation or refer it back to the committee for further study or reject the recommendation and appoint another industry committee. He cannot, however, change any part of any minimum wage recommendation. In connection with the opposing vote of Mr. Springthorpe it was pointed out by the wage-hour division that less than 10 per cent of the industry is located in the South. The industry is concentrated in the Middle Atlantic and New England States with 20 per cent of both factory and home workers employed in the State of New York, 15 per cent in Pennsylvania and 15 per cent in Massachusetts. A total of 23,000 workers are employed in the factories and of these about 7,500 will receive wage increases if the 35 cent hourly minimum is approved by the Government agency. Benefiting also will be home workers, the number of which is not estimated by the wage-hour division but believed to approximate 100,000.



The above pictures are photomicrographs of yarn showing the results of mercerization. The picture at the left is of unmercerized cotton thread; the one at the right shows removal of fuzziness on yarns through mercerization; both photomicrographs enlarged about 50 times. Courtesy Hatch Textile Research, Inc.

Silk Rise Makes New Problems for Branded

With raw silk in the neighborhood of $3.50, a serious problem is created for manufacturers of hosiery, most of whom desire to go through the holiday season with no further change in the retail price level of full-fashioned hosiery. The trade is traditionally reluctant to upset retail figures during the holiday season, when their biggest volume of the year is done even when conditions call for price adjustments. Manufacturers usually wait for the introduction of new lines in January to make such changes and with silk reaching such a high level at the beginning of November this meant that quite a number of manufacturers who have been buying this commodity from hand-to-mouth would have to pay higher prices for silk than they would be able immediately to get out of their hosiery. For this reason it is not regarded likely that the important branded manufacturers will make any further price changes in women's full-fashioned until the holiday season is over although such a step would be fully justified under conditions confronting manufacturers in the raw market.

Hosiery Conference to Be Held Jan. 17-18

The fourth annual hosiery industry conference will be held in New York at the Waldorf-Astoria Hotel on Wednesday and Thursday, January 17-18, according to an announcement by the National Association of Hosiery Manufacturers. Taking part in the meetings also will be The Full Fashioned Hosiery Manufacturers of America, the Southern Hosiery Manufacturers Association, and the Woolen Hosiery Institute of America. The conferences are held for the benefit of all hosiery manufacturers who are invited whether members or not of any of these associations. The announcement stated that although no definite program had been developed as yet matters considered to be of the first importance and interest to the industry will come up for discussion.

Berkshire Told to Pay Back Wages

The National Labor Relations Board has ordered the Berkshire Knitting Mills of Reading, Pa., to reinstate more than 500 strikers and give them back pay unofficially estimated at about $500,000. Charging the company with unfair labor practices, the Board also directed the mill to dissolve the "company dominated" Berkshire Employees Association and to declare void any contract with that group. The Board's decision was made on complaints filed by the American Federation of Hosiery Workers, Branch No. 10, after a bitter seven-week strike at the Reading mill in 1936. In the ruling the knitting mill is directed to cease any interference with employees joining the federation and with their free choice of a bargaining agency.

Back pay must be restored to three employees who were peremptorily discharged prior to the strike, to another group of over 300 workers who made application for reinstatement and to a third group who may not yet have made application. In the two latter classifications the back pay is to date from the time of application for reinstatement and in the first group from the date of their discharge. The Berkshire Knitting Mills, the Board stated in its decision, was willing to reimburse nonstrikers for damage to their homes but it was not willing to take the steps which might have ended the situation from which that damage resulted.

The Board, in its decision, reviewed the past history of labor relations at this hosiery manufacturing plant from 1933 to November 6, 1937, the date of the filing of the complaint by the American Federation of Hosiery Workers. It found that in addition to the company's support of the Association other events leading up to the strike were the threats to discharge certain employees unless they publicly repudiated an article which had appeared in a union publication and the company's refusal to meet with a union committee unless it was limited to plant employes. By these and similar methods it was stated the company prevented the Federation from negotiating effectively its wage and hour demands and forced it to resort to striking. Berkshire will appeal the case.

Larger Exports of Hosiery?

The prospect of larger hosiery exports from the United States was held out by Richard P. Brown, Pennsylvania Secretary of Commerce. In a survey of war-changed hosiery markets in Latin America, United States and Europe it was said that the unfilled market resulting from curtailment of exports from the belligerent nations might reach $15,000,000 a year. It was said this country now exports about $3,000,000 worth of hosiery a year of which about 44 per cent of it is made in Pennsylvania mills. It warned, however, that Pennsylvania and the United States will not be the only bidders for the world trade in hosiery. It said among the leading exporters in recent years have been Germany, Great Britain, France, Italy, Japan and Canada, adding that the war may reduce or eliminate competition from some of these countries but intensify it from others. The largest opportunities for increased markets for American hosiery will come in supplying the demand formerly filled by hosiery exports from

Germany but with Italy and Japan competing for the same business, the summary said.

Mr. Brown said such markets can only be held permanently by those who are careful that their product is precisely what the foreign consumer wants. In many cases a style popular in the United States is not in great demand in foreign countries. As an example of how market conditions differ in the various countries he cited the different types of hosiery in demand in the Latin American countries. In some knee length hosiery is preferred and the manufacturer who sends such stockings to those particular markets will sell more than the one who sends full length stockings. In some of the other countries demand is for service weight, second and third grades, seamless, mixed yarn, rayon and cotton hosiery, mostly of low price which is far in excess of the demand for silk stockings of finer quality in some markets. In other countries most of their own hosiery is of the cheaper grades.

Hosiery Mills Use Silk Substitutes

More substitution than usual for silk by the hosiery industry is an expected result of the high prices for this fiber. The record sales of all kinds of hosiery in recent years has been brought about by the values that could be offered the public at prices that fit the consumer pocketbook. This has been particularly true of silk hosiery so that the exceptionally sharp advance in raw silk this year is causing misgivings among manufacturers who have delayed putting into effect justified advances in their product as long as possible but in the meantime silk continued to advance. In view of this numbers with rayon welts, others with lisle welts or lisle back welts are now heard of more frequently and manufacturers have also begun to twist silk with other yarns such as rayon in the leg with the idea of bringing costs down. This trend in constructions will be in evidence even more so after the first of the year.

Co-operative Mills Attract Attention

On November 10 the largest co-operative hosiery mill began operations with 550 employees in a plant equipped with 122 full-fashioned knitting machines. The new project began operations in the Hancock Knitting Mills, Philadelphia, which was previously known as the Westmoreland Plant of the Interstate Hosiery Company. When that project closed the employees worked out a plan to re-open with their own money, each male worker subscribing $300 and each woman $150. Signing of the agreement of sale for this worker-owner enterprise was concluded a short time before at the offices of the Ninth Bank and Trust Co. In addition to the officers who have been elected there will be an advisory committee of three prominent business men who will give their time and effort without charge and will hold no stock. Full union wages will be paid and there will be in fact a contract with the American Federation of Hosiery Workers.

There are four other co-operatively run hosiery plants in Philadelphia which were previously organized under the direction of the Rev. David C. Colony. But because of a disagreement the Rev. Colony has just resigned from the Colony-Maid, Inc., and at the same time he was attacked in the press by William M. Leader, president of the Philadelphia Local of the American Federation of Hosiery Workers who charged that Dr. Colony was trying to dominate the union and "trying to buy jobs out from under people and then sell them back to the same workers at his own price." Dr. Colony countered with the assertion "The only thing in the union I want to destroy is the leadership. The 300 members of the co-operatives are all paid up members and I repeatedly have urged them to stay in the union and try to reform the leadership." Notwithstanding Dr. Colony's resignation from this one mill more than 200 employee-owners of the four other co-operatives in Philadelphia unanimously endorsed his leadership. He announced that he was busy with plans for two other co-operatives.

An Eye on the Knitting Mills

The McEwen Knitting Company, Burlington, N. C., has constructed a new two-story brick addition. The first floor will house a new office and the top floor will be used for additional production machines.

Infant Socks, Inc., Eufaula, Ala., will triple the production of its plant. The Stuart and Flewellen cotton warehouse has been remodeled and equipment is being moved in.

Real Silk Hosiery Mills, Dalton, Ga., have completed the installation of new full-fashioned hosiery machines, but it is understood that at a later date more machines will be added.

Vanette Hosiery Mills, Dallas, Tex., has installed four additional full-fashioned machines, and it is reported that six others will be placed in operation soon.

Blackstone Dye Works, Inc., Woonsocket, R. I., will build a one-story addition to its plant. This will be 87x70 feet of brick construction, to cost $7,500.

Pitman Hosiery Mills, Laconia, N. H., have been established and some of the machinery, manufactured by S & W, has been installed. The company will specialize in men's half-hose.

Operations are understood to have started at the H. A. Vestal Company, Blue Ridge, Ga. Full-fashioned hosiery is manufactured.

It is reported that the Belding (Mich.) Hosiery Mills will be re-opened, after having been closed for a number of months.

Palmetto Hosiery Mill, Saluda, S. C., a new enterprise, has been granted exemption from city and county taxes for 10 years, it is understood.

Asheboro (N. C.) Hosiery Mill has contracted for 12 new full-fashioned knitting machines. This will bring the total number of machines up to 32.

Sellers Hosiery Mills, Burlington, N. C., are erecting an addition, with H. Frank Mitchell, Jr., as contractor.

Holston Manufacturing Company, Knoxville, Tenn., has re-opened after being closed for two months.

It is understood that John L. Everett, Jr., will establish a hosiery mill at Rockingham, N. C.

Hagerman Hosiery Company, Philadelphia, Pa., has been incorporated with an authorized capital of $25,000.

Gail Knitting Company, Reading, Pa., has started operations in the manufacture of sweaters and bathing suits.

The new hosiery mill which will be erected at Welcome, N. C., will be the city's first industry of this type.

Galax (Va.) Knitting Company has bought 45 new S & W wrap machines.

Free Stockings for Beer Bottle Tops

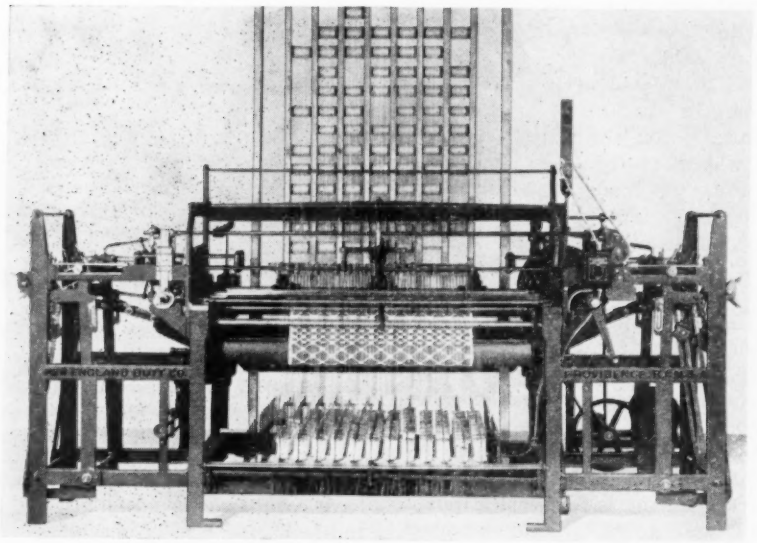
Offering of $1.00 Kayser sheer chiffon hose free for 120 Arrow Beer or Ale bottle tops to residents of Delaware, as advertised in the Baltimore *Sun*, is reported to have aroused the ire of retailers in the Baltimore area. It is also reported protests have been lodged with Julius Kayser & Co. by individual retailers and by the National Retail Dry Goods Association. The latter group has gone on record in the past as strongly disapproving the offering of branded hosiery as premiums with other merchandise on the grounds that such offers deprive department stores and specialty shops which handle such branded hosiery day in and day out of sales to which they are entitled.

Underwear Shipments Show Large Gains

The underwear industry was doing very well even before the war started when buyers began to anticipate their needs in a larger way than they probably would have otherwise. For the eight months ending this August, which represent the period before the war excitement began, total production of the three leading branches, knit, cotton and wool, woven underwear and rayons amounted to 21,200,000 dozen. Shipments were likewise well balanced against production amounting to 20,929,000 dozen. For the same months last year production amounted to 16,825,000 dozen while shipments for the same time topping production were 17,494,000 dozen.

Of the several divisions of the industry knit, cotton and wool is the largest and the production gained in this end of the industry was the largest of any amounting to as much as 33 per cent compared with a year ago. Stocks with mills at the end of August amounted to 3,974,000 dozen which was not a serious increase over the 3,377,000 dozen of a year ago but a trend that may bear watching although orders on hand showed a gain of close to 40 per cent compared with a year ago. In general the 1939 gains reflect the recovery after the extreme setback in the 1937 slump.

The unfavorable inventory situation brought on by the overbuying late in 1936 and early 1937 was fairly well liquidated at the end of 1938, starting a new buying movement to provide for normal business. The spring and summer underwear business this year was more satisfactory than for several past. Buying continued late in all numbers showing that stocks with distributors were low. The buying for this fall while not especially heavy was improved over that for 1938, with the war giving an artificial stimulus to the late fall business as well as that for next spring. September data show that the orders on hand at the end of that month were approximately double the volume on the books at the end of September, 1938.



Colony Hits Union Head

The Rev. David C. Colony, head of three hosiery co-operatives in Philadelphia, declared in an address before the Kiwanis Club, that the leadership of Branch No. 1, American Federation of Hosiery Workers "is in the hands of labor racketeers." Urging amendments to the State and Federal Labor Relations Acts outlawing strikes and picketing, he said: "District Attorney Dewey has broken up some labor racketeering in New York but right here in Philadelphia, we have an instance of it—the vicious leadership of the local hosiery union." The local is headed by William M. Leader. He said the rank and file of the union were not to blame but claimed most are afraid to protest, being "scared to death of being beaten or blackballed so that it will be impossible to get a job in the industry."

Foil Represents Standard-Coosa-Thatcher in Carolina

Joe O. Foil has been appointed sales representative to the seamless hosiery trade in the Carolinas territory of the Standard - Coosa - Thatcher Company, Chattanooga and Philadelphia, where he is well known to hosiery manufacturers. N. P. Murphy will continue to contact the full-fashioned trade. Mr. Foil will work out of the Greensboro, N. C., office in the Guilford Building.

New Knitting Loom

The New England Butt Company, Providence, R. I., has developed a new knitting loom for the manufacture of curtain materials, trimmings, wash cloths, table cloths and similar materials. It knits its warps in individual lines, or wales, of loops which appear in the cloth as isolated lines of a single chain stitch. Between these, the weft or filling is laid back and forth either regularly or irregularly so as to form patterns in weaving. The new machine is equipped with 10 pattern bars, and can fabricate intricate designs in one or several colors or types of yarn. It has electric stop-motions on both warp and filling yarns.

Another feature is a speed changing mechanism actuated by a handwheel which gives a 2.75:1 ratio in speed while the machine is operating. It is equipped with an automatic reverse mechanism so constructed that a shorter reverse pattern chain is used. The needle pusher plate fits into a grooved member and may be instantly removed without using tools or without removing thumb screws. The new machine is built in two sizes for the manufacture of goods up to 54 inches or 76 inches wide respectively.

Fidelity Acquires Rehfuss Company

The Fidelity Machine Company, 3908-18 Frankford Ave., Philadelphia, Pa., has acquired the business of George Rehfuss & Sons, Philadelphia, covering the manufacture of the complete line of improved fringing and tassel machines. Three distinct styles of machines are now made available to manufacturers of rugs, curtains, covers, couch covers, quilts, shawls and scarfs, and Fidelity is prepared to make prompt delivery of complete machines and service parts.

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TRENDS—YARN MARKETS

Cotton, Silk and Rayon Yarns Higher Than Last Month But Worsted Counts Decline from Peak Levels. New Business Less Active Than In September And October But Deliveries Large On Old Orders. Strength In Silk Worries Full-Fashioned Mills

Philadelphia, November 16, 1939

LESS EXCITEMENT has prevailed in the yarn markets this month but pressure for deliveries on the exceptionally large volume placed in September and up to the middle of October is great. New business in cotton yarns has been only about one-third that of the previous months following the outbreak of war but the largest deliveries of recent years are going forward. In silk a new peak was reached October 31 but knitters have been buying this commodity and yarns made from it cautiously; in worsted counts there has been a distinct easing and little in the way of new orders although here too the shipments on old orders which will keep many spinners busy for a couple of months are large. In rayon yarns the price situation is strong and the lack of stocks in the market make pressure for both new business and deliveries as keen as any time this year.

Cotton Yarns

In contrast to weakness that has developed in some other types, cotton yarns have been very steady this month and in the ply counts further advances have been made. Carded knitting yarns are quoted at the same level as a month ago but single combed has advanced approximately one cent. The latter quality is now quoted on the basis of 35 cents for 30s while carded knitting is quoted from 24 cents to 25 cents basis 10s. In contrast to this small difference in knitting counts some counts in carded two ply are two cents higher now than a month back and in fine counts of combed the increase has been as much as three cents. This price change reflects the present tight delivery situation in ply yarns of both carded and combed quality, spinners claiming that the twisters are unable to keep up with delivery demands.

New Business has been much smaller than in either of the previous two months but manufacturers are taking the largest deliveries of the year with no accumulation of stocks noted. In this connection sales yarn spinners report that their stocks are smaller at present than for a long time and in some types of yarn stocks in spinners' possession are entirely cleaned up, this being particularly true in two ply combed. The latter situation is of significance to mercerizers who are dependent upon these yarns for their gray yarns. It is the reason that processors are very conservative at present in taking on new business, several of them stating that they find two ply combed yarn sold ahead so tightly. Mercerizers advanced prices late in October two cents in the coarse counts and six cents in the finer numbers bringing the new list up to 72 cents for 60s 2-ply ungassed. Mercerizers have not been selling new contracts actively but they are extremely busy and delivering all the yarn that they can process.

The new minimum of 32½ cents per hour under the Wage and Hour Act, which became effective October 24, was passed without any noticeable effect in cotton yarns. While a number of carded yarn spinners are asking for slight advances on contracts that were booked prior to that date and on which deliveries are being made at present a majority report that they will have only a small number of contracts to be adjusted. Some sales yarn spinners have made adjustments on this account of ½ cent on counts such as 20s but in other instances spinners have made no wage adjustments on their old contracts. Commission houses state that they do not expect this to develop into any serious difficulty as was the case when wages had to be adjusted under the NRA. No adjustments were announced by combed spinners because most of these producers were paying wage rates approximately the same as now in effect.

Silk

Raw silk reached a level of $3.60 at the end of October which compares with a low of around $1.80 of last January and it compares with a low last year of $1.50. As this high mark was reached prices have eased somewhat but there are no indications that a major decline has come. Yet most American manufacturers are of the opinion that the advance in this commodity has been sharper than the situation would justify. It is recognized that stocks here and abroad are low and consumption both in Japan and in this country is large but hosiery manufacturers feel that prices have been pushed up too rapidly and too far by speculative buying here and abroad. It is recognized that production costs in Japan are higher with increased shipping and insurance charges and there is also talk that penalty duties may be imposed upon raw silk imports when the Japanese-American commercial treaty expires on January 26.

Deliveries of silk to American mills in October totaled 41,858 bales, this being the largest in almost three years or since January 1937 when over 44,000 bales were delivered. Imports were also heavy that month, 50,033 bales arriving and warehouse stocks increased to 35,935 bales as a result. The sharp advance in silk was regarded by some as discounting a greater scarcity next spring, it being believed that the supplies for this month and next will be entirely adequate and probably into January. The real scarcity will only begin to be felt when production falls off seasonally during January.

Rayon

With shipments of rayon yarn for the first ten months of the current year reaching a total of 292,400,000 pounds or an increase of 29 per cent over shipments for the corresponding 1938 period, the industry believes that a new high mark for consumption will be reached this year. Shipments so far this year are only little below the previous twelve months record total of 297,346,000 pounds established for 1936. Rayon deliveries to mills at the present time are limited only by the amount that plants can turn out and complaints are being heard from both weavers and knitters of delays in deliveries of yarn booked some weeks ago.

Producers report that orders on their books for December delivery point to tight yarn situation for the rest of the year with practically no reserve stocks carried over into 1940. While confident that the rayon market will continue strong for weeks ahead some producers are uncertain about prospects for the first quarter of next year. Should the European war continue they believe that there would be no slackening in rayon demand but it is equally their belief that a quick peace would result in a less active period while some of the inventory accumulations were digested. Stocks of rayon in the hands of producers at the end of October amounted to about one week's supply.

Worsted Yarn

These yarns have displayed the greatest weakness of the month which has been due to the persistent weakness in the raw material market. At the present time wool top futures are off 15 cents from the high mark reached in September. Fine grade yarns have also eased about 15 cents but the more widely used knitting yarns made from medium grade wools have eased only about 5 cents. The relative strength shown in medium wools and yarns made therefrom is due to a world wide demand for such wools, several countries at war demanding such grades for their military fabrics and in the case of England not permitting the export of such grades to this country. New business in worsted yarns has been very small this month and indications are that when yarns are bought for the spring garments there will be a greater use of the so called cheapener yarns such as cotton-cores, cotton-worsted twist and rayon in various forms.

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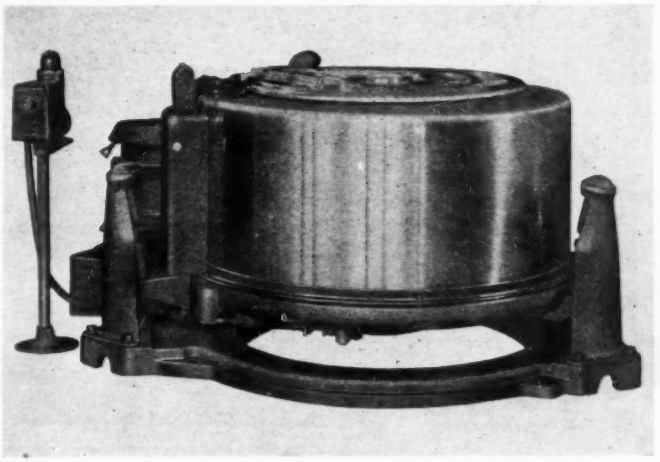

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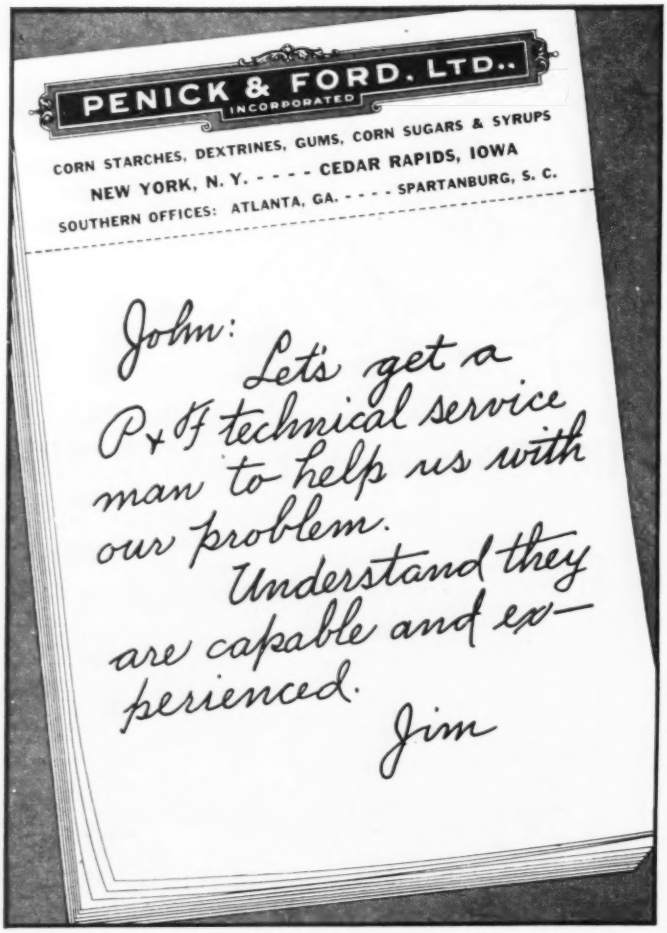
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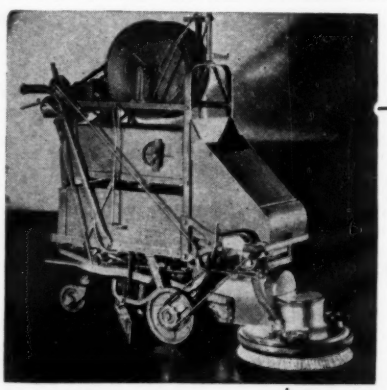

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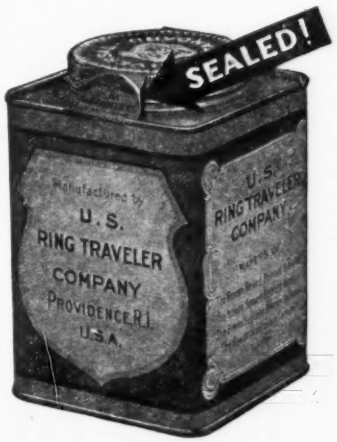

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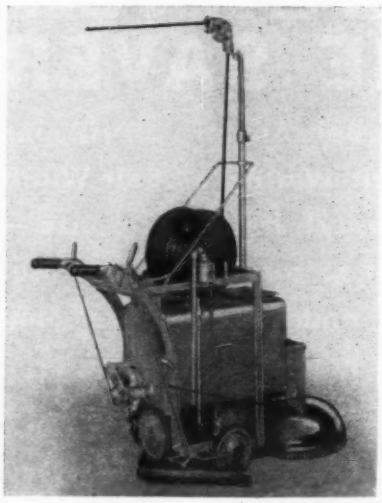

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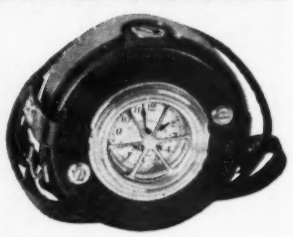

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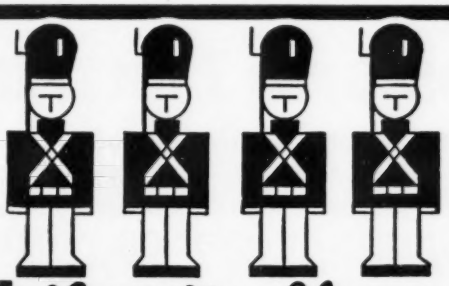

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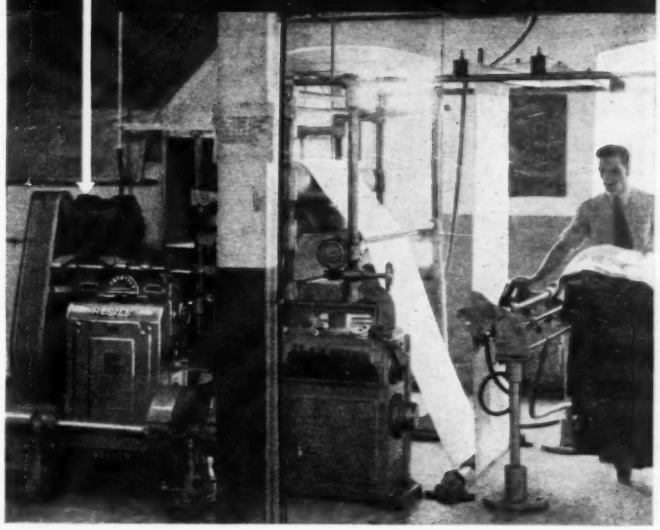

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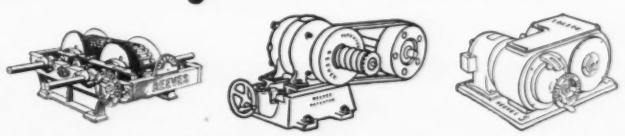

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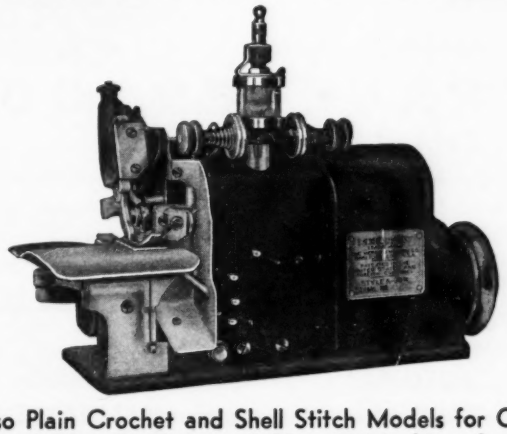

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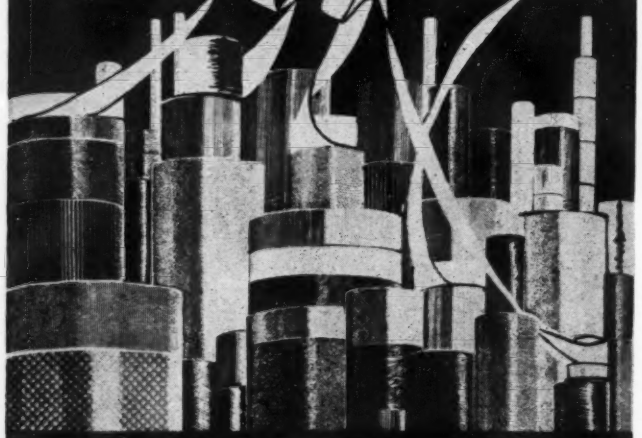

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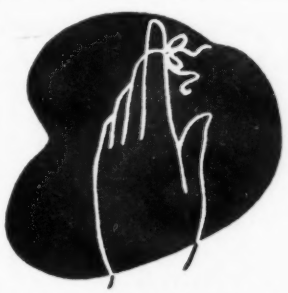

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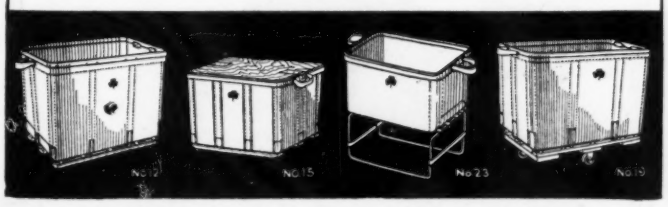

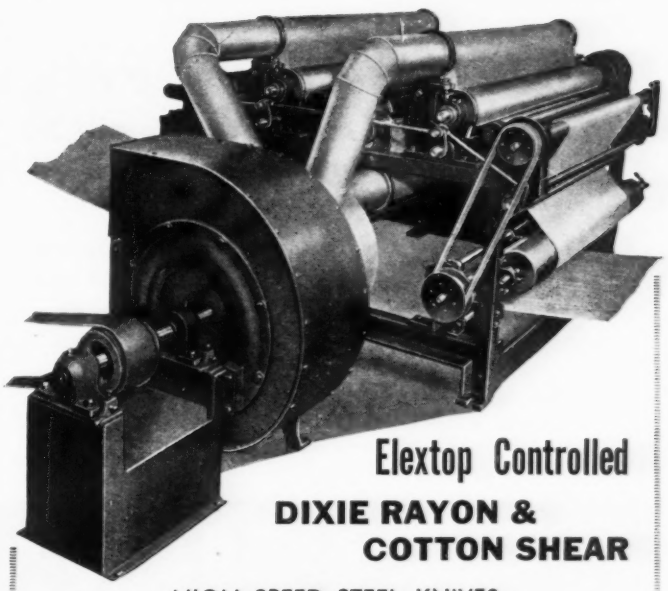

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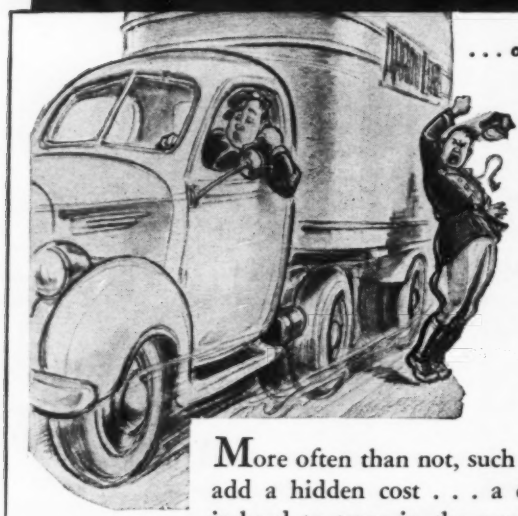

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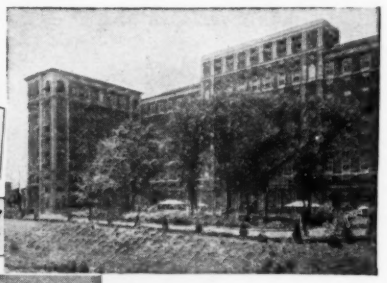

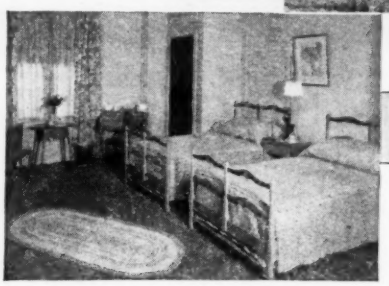

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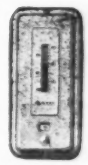
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Index of ADVERTISERS

The Advertisers' Index is published as a convenience, and not as a part of the advertising contract. Every care will be taken to index correctly. No allowance will be made for errors or failure to insert.

A

Abington Textile Machinery Works 109
Albany Felt Co. ..... *
Aldrich Machine Works 14
Alemite Corporation ..... *
Allis-Chalmers Mfg. Co. 4
American Aniline Products, Inc. .....Inside Back Cover
American Moistening Co. .... *
American Monorail Co. 148
American Pulley Co. 142
American Viscose Co. ..... *
American Yarn & Processing Co. ..... *
Arguto Oilless Bearing Co. ...148
Armour & Co. ..... *
Armstrong Cork Co. 79
Arnold-Hoffman & Co., Inc. ... 30
Ashworth Bros., Inc. 38
Associated Business Papers Inc. ..... *
Atlanta Envelope Co. ..... *
Atlas Electric Devices Co. 111

B

Barber-Colman Co. 99
Barkley Machine Works 146
Best Universal Lock Co. ..... *
Borne, Scrymser Co. 149
Bosson & Lane, Inc. 146
Bowen-Hunter Bobbin Co. 50
Boyle Co., Inc., A. S. ..... *
Brinton Co., H. 141
Brown Instrument Co. 21
Bunting Brass & Bronze Co. .. *
Butterworth & Sons Co., H. W. 39

C

Calco Chemical Co., Inc. .... *
Cameron Machine Co. 146
Ciba Company 52
Classified Ads 150
Cleveland Tramrail Division ... 97
Clinton Co. 104
Clover Leaf Mfg. Co. ..... *
Cole Mfg. Co., R. D. 149
Colgate-Palmolive-Peet Co. ... 36
Commercial Credit Co. 16
Commercial Factors Corp. .... *
Corn Products Sales Co. 91

D

Darnell Corp., Ltd. 142
Dayton Rubber Mfg. Co. ..... *
Dary Ring Traveler Co. 144
Detergent Products Corp. ..... *
Detex Watchclock Corp. 144
Diamond Alkali Co. 43
Dixie Mercerizing Co. Front Cover
Dommerich & Co., L. F. ..... *
Drake Corp. ..... *
Draper Corporation 1
Dronsfield Bros., Ltd. ..... *
Du Pont de Nemours & Co., Dyestuffs Division ..... *
Du Pont de Nemours & Co., Inc., E. I., Fine Chemicals Division ..... *
Du Pont de Nemours & Co., Inc., Finishes Division 41
Du Pont de Nemours & Co., Inc., E. I., R. & H. Chemicals Dept. 32

E

Eaton, Paul B. 150
Emmons Loom Harness Co. 24
Executive's Promotion Service.150

F

Fafnir Bearing Co. 20
Fidelity Machine Co. 139
Finnell System Inc. 142
Foster Machine Co. 47
Foxboro Co. 42
Franklin Process Co. 17

G

Gates Rubber Co. 18
Gaylord Container Corp. 10
General Coal Co. ..... *
General Dyestuffs Corp. ..... *
General Electric Co., Lamps.. .....28 and 29
General Electric Co., Motors.. .....22 and 23
Gill Leather Co. 87
Goldens' Foundry & Mch. Co...149
Goodyear Tire & Rubber Co.... *
Grinnell Co., Inc. 146
Gulf Oil Corporation 34

H

H & B American Machine Co... 26
Hauser-Stander Tank Co. 111
Henderson Foundry & Mch. Works 150
Hetherington & Sons, Inc., John ..... *
Hotel Atlanta Biltmore 150
Hotel Columbus 95
Hotels Dinkler ..... *
Houghton & Co., E. F. 7
Howard Bros. Mfg. Co. 45
Hunter Machine Co., James ... 46
Hyatt Bearings Division 25

I

International Nickel Co., Inc... *

J

Johnson Bronze Co. ..... *
Johnson Corporation ..... *

K

Kali Mfg. Co. 151
Kaumagraph Co. ..... *
Keever Starch Co. 147

L

Lane & Bros., Inc., W. T. ...109
Langevin, George F. ..... *
Laurel Soap Mfg. Co. 141
Lawlor Co., S. C. 144
Lola Mills, Inc. ..... *
Loper Co., Ralph E. 148
Lunkenheimer Co. 44

M

Manhattan Rubber Mfg. Co. Division 15
Maple Flooring Manufacturers Asso. ..... *
Marquette Metal Products Co... 54
Mathieson Alkali Works, Inc.. 27
Meese, Inc. 147
Merrow Machine Co. 145
Morse Chain Co. ..... *

N

National Oil Products Co. 95
National Ring Traveler Co. ...146
National Starch Products, Inc.. *
New York & New Jersey Lubricant Co. 93
North, Inc., Frank G. 89

O

Old Dominion Box Co. 139

P

Pabst Sales Company 111
Page Fence Association 104
Parks-Cramer Co. ..... *
Parks & Woolson Mch. Co. 147
Pawtucket Spinning Ring Co... 9
Penick & Ford, Ltd., Inc. ...142
Pennsylvania Salt Mfg. Co. ...113
Powers Regulator Co. 151
Proctor & Schwartz, Inc. 109
Provident Life & Accident Insurance Co. ..... *
Pure Oil Co. 152

R

Ragan Ring Co. ..... *
Reeves Pulley Co. 145
Reliance Electric & Eng'g Co.. *
Republic Rubber Division .... *
Republic Steel Corp. ..... *
Rhoads & Sons, J. E. 143
Ridge Tool Co. ..... *
Robert & Company..... .....Inside Front Cover
Rochester Eng'g & Centrifugal Corp. 141
Rockwood Mfg. Co. 37
Rohm & Haas Co. ..... *
Royce Chemical Co. ..... *

S

S. K. F. Industries, Inc. 33
Saco-Lowell Shops 9
Sandoz Chemical Co. ..... *
Scholler Bros., Inc. 139
Scott & Williams, Inc. 118
Selig Company 144
Seydel Woolley & Co. 145
Shell Oil Co., Inc. ..... *
Sherwin-Williams Co. ..... *
Showalter Printing Co., A. J.. 148
Sirrine & Co., J E. 142
Snap-On Tools Corp. ..... *
Socony-Vacuum Oil Co., Inc.. .....12 and 13
Solvay Sales Corp. 148
Sonoco Products Co. 100
Staley Mfg. Co., A. E. 83
Standard-Coosa Thatcher Co...117
Standard Oil Co., Inc., of Kentucky ..... *
Standard Pressed Steel Co. ... 49
Standard Silicate Division ... 43
Steel Heddle Mfg. Co. 5
Stein, Hall & Co., Inc. 19
Stodghill & Co., Inc. ..... *
Sturtevant Co., B. F. 48

T

Taylor Instrument Companies. 40
Tennessee Eastman Corp. 81
Terrell Machine Co. 93
Texas Co. 2
Textile Finishing Machinery Co. 85
Textile Machine Works 123
Three-In-One Oil ..... *
Torrington Co. .....127 and 128
Trust Company of Georgia ... 77

U

Union Special Machine Co. ... 6
Universal Winding Co. 11
U S Bobbin & Shuttle Co. ... 35
U. S. Ring Traveler Co. 143
U. S. Testing Co., Inc. 91

V

Vacuum Cup Metal Pulley Co..144
Veeder-Root, Inc. .....Back Cover
Victoria Paper Mills Co. ..... *

W

Wallerstein Co., Inc. 148
Want Ads 150
Warner Chemical Co. 3
Warwick Chemical Co. ..... *
Westinghouse Electric & Mfg. Co. .....8, 132, and 133
West Point Foundry & Mch. Co. 31
Whitin Machine Works ..... *
Whitinsville Spinning Ring Co..151
Whitman Co., Inc., William .. 89
Wildman Mfg. Co. 125
Wolf & Co., Jacques ..... *

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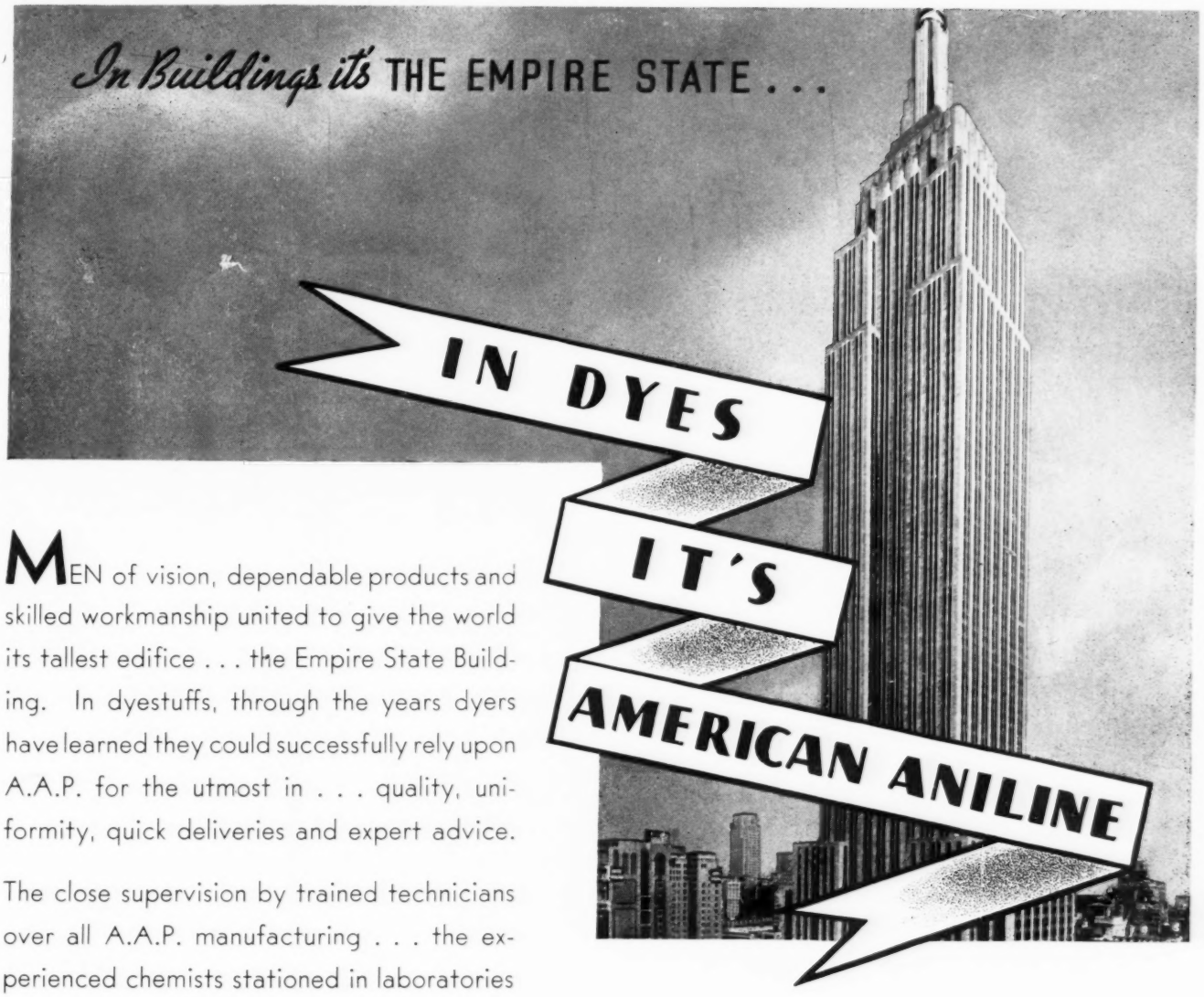

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